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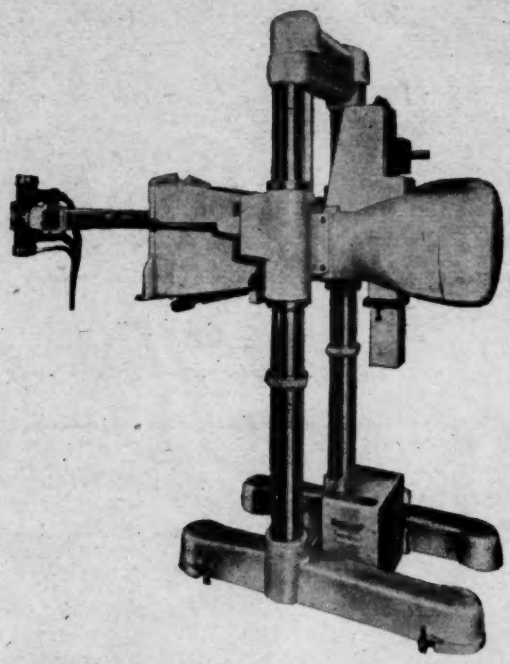

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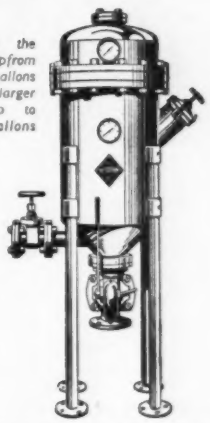

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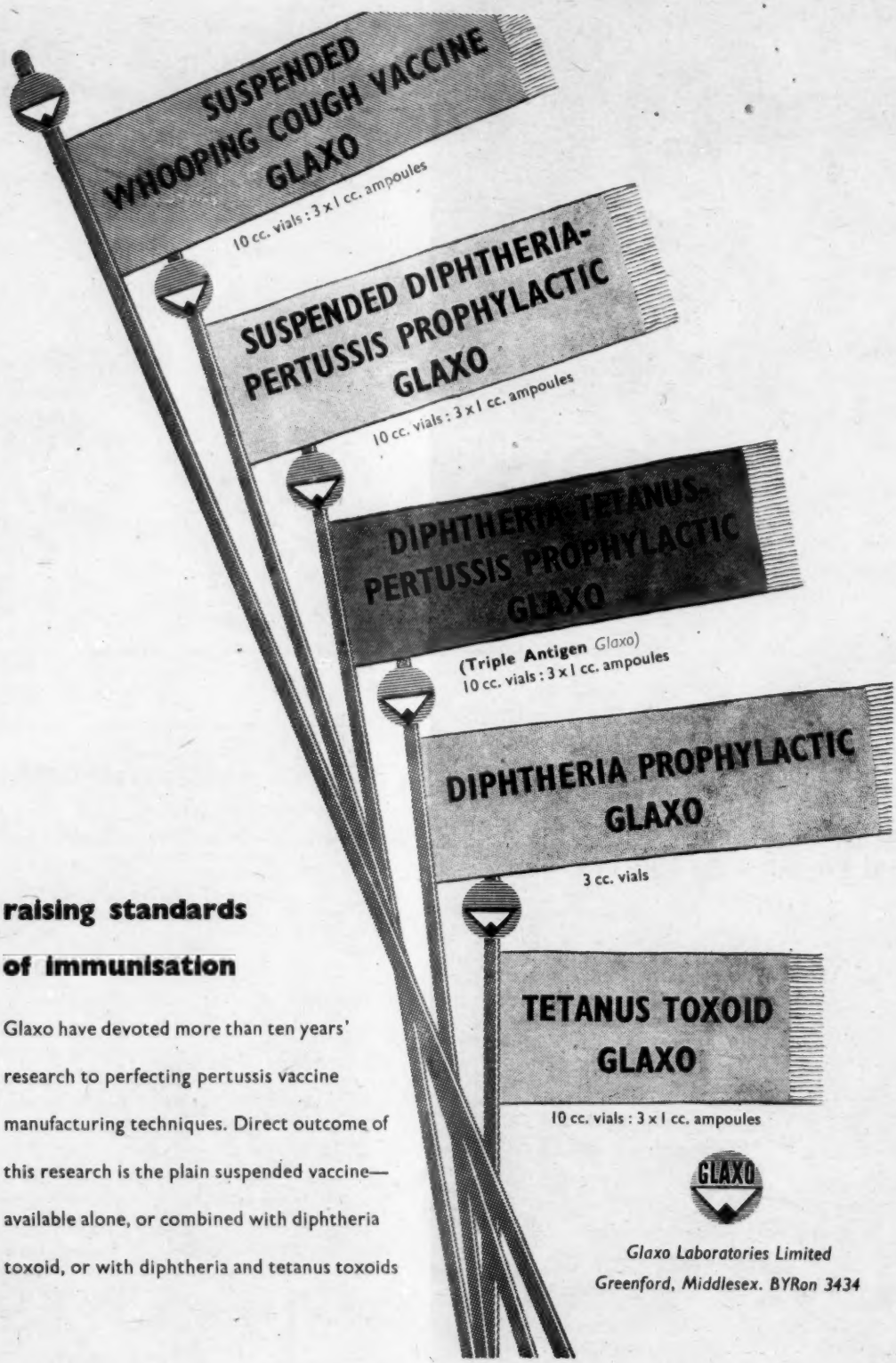
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THE MARCH COUNCIL MEETING

A Meeting of the Council of the Society was held on Friday, March 4th, 1955, and 36 members were present. Dr. C. Metcalfe Brown was in the chair.

Duties of Nurses.—It was reported that further consideration was being given by the Royal College of Nursing to the draft memorandum which had already been accepted by the Society, in view of the fact that certain of the other Associations represented at the recent Conference had suggested some amendments. It was possible that a further conference of interested associations would be called in the near future.

Meat Inspection.—At a Joint Meeting of the Society, the British Medical Association and the Sanitary Inspectors' Association held recently the question of the functions of the Ministry of Food was discussed in the light of the possible distribution of these functions among the other Ministries. The meeting was of opinion that the functions so far as they related to food hygiene, meat inspection, etc., should not be taken over by the Ministry of Agriculture and Fisheries. The Chairman stated, that in view of the fact that it was likely that the Government would have to reach any early decision on this question, and after consulting the President, he had given instructions on behalf of the Council that a letter should be addressed to the Ministry of Health in the matter. The letter stated that the Society felt most strongly that those functions of the Ministry of Food relating to food hygiene, etc., were clearly public health activities of great importance and as such they should be transferred to the Ministry of Health on the closing down of the Ministry of Food. The Chairman reported further that he understood that the British Medical Association and the Sanitary Inspectors' Association had taken similar action. The Council endorsed the action of the Chairman.

Future of Child Welfare Clinics.—The Meeting was informed that the very valuable document prepared by the Maternity and Child Welfare Group on the Future of Child Welfare Clinics, which had been approved by the Council of the Society, had not yet been published by the *British Medical Journal*, although it was hoped that some reference to the document would be made in the Editorial columns.

Industrial Health Advisory Committee.—Following the last meeting of the Council a letter was forwarded to the Ministry of Labour and National Service regarding the membership of the Industrial Health Advisory Committee, and seeking the appointment of a representative of the Public Health Service on the Advisory Committee.*

Members were very pleased to hear that the Council of the British Medical Association had discussed the action of the Society and had agreed that the Secretary of the Association should write to the Ministry supporting the claim of the Society for representation. The Occupational Health Committee of the Society is continuing its discussions and a document is in course of preparation.

British Dental Association Memorandum on the Dental Health of Children.—The Council considered the comments of the Dental Officers, Maternity and Child Welfare, and School groups on a document issued by the British Dental Association on the subject of the dental health of children, and agreed that they should be forwarded to the British Dental Association.

World Health Organisation/United Kingdom Committee.—The President, Dr. Jean M. Mackintosh, reported that she had attended a meeting of the United Kingdom Committee of the World Health Organisation and gave a résumé of the discussions at the meeting. Sir Allen Daley, who is the Chairman of the Provisional Committee, also spoke on the constitution of the committee. It had been decided to set up a Steering Committee but the President stated that she found it quite impossible to accept membership of that committee, although she had been pressed to do so. Sir Allen Daley expressed the view that it was not necessary for the President herself to sit on the Committee but he did feel that the Society should be represented. Prof. C. Fraser Brockington kindly agreed to serve on the Steering Committee.

Mental Illness and Mental Deficiency.—It was reported that representatives of the Society had attended a meeting of the Royal Commission on the Law relating to Mental Illness and Mental Deficiency, and had been questioned as to certain matters referred to previously in the Society's memorandum of evidence (published as an appendix to this report).

Training Course for Newly Appointed School Medical Officers.—Considerable discussion took place on the proposal of the School Health Service Group to introduce a series

* The Minister has since replied that he cannot meet this request.

of courses for newly appointed officers in the School Health Service. The Meeting decided that they could not support these proposals until there had been joint discussions with he M. & C.W. Group as recommended at the recent meeting of the General Purposes Committee. The matter was deferred pending a report from the General Purposes Committee following joint discussions between the M. & C.W. and School Health Service Groups.

Milk and Dairies Regulations.—Following the last meeting of the Council, arrangements were made for the Standing Committee for Food Matters to hold a Joint Meeting with representatives of the Public Health Committee of the British Medical Association to discuss the questions referred to the B.M.A. and the Society by the Ministry of Health, regarding the operation of the Milk and Dairies Regulations during the last five years. Full agreement was reached at the meeting and the following points were made in the memorandum submitted :—

(A) *Milk and Dairies Regulations*, 1949 *and Milk and Dairies Amendment Regulations*, 1954.

It is considered that the supervision by Local Authorities of the distribution of milk is rendered difficult by the fact that producer/retailers in their respective areas, are not registered by the Local Authority but by the Ministry of Agriculture and Fisheries. If this divided control of milk supplies is essential, it would be an advantage if the Ministry of Agriculture and Fisheries was required, by regulation, to notify Local Authorities of dairy farmers who are registered by them as producer/retailers in their respective areas. Such notification would enable Local Authorities' at an early date, to become aware that a dairy farmer was, in fact, retailing milk.

Part I—Section 2.

(a) In considering the definitions under this section, it was considered to be most desirable that all definitions used in the various Milk Regulations should be brought into line and incorporated in the definitions under the Milk and Dairies Regulations. *e.g.* It would appear to be desirable that in these Regulations there should be a definition of " retail sale "—if the definition of " Retail Sale " as under the Milk (Special Designation) (Pasteurised and Sterilised Milk) Regulations, were incorporated in the Regulations under discussion this point would be covered.

(b) It is considered that the definition " Milk " in these Regulations and the Food and Drugs (Milk and Dairies and Artificial Cream) Act, 1950 should be brought into line.

(c) It is also considered that by definition or by some other means provision should be made for the prevention of the sale of products consisting of milk with other substances without the same protection given by the Regulations in relation to milk.

Part VI—Section 17.

It is considered that in view of the existing availability of refrigerators there would not be any great difficulty if a requirement were introduced whereby milk had not only to be cooled to a temperature not exceeding 50 degress Fahrenheit, but also stored at such temperature.

Part VII—Section 20(4).

There is no requirement in the present legislation whereby the Ministry of Agriculture and Fisheries should notify the Local Authority in the event of revocation or suspension of a Tuberculin Tested producer's licence and it may be therefore, that a producer whose Tuberculin Tested licence has been revoked or suspended continues to sell milk after such revocation or suspension. It would seem practicable moreover, that the issue of a Tuberculin Tested producer's licence should also be notified to the Local Authority in those areas in which the milk may be sold. Further, it is suggested that the Medical Officer of Health of a County District should in turn be required to notify the County Medical Officer of Health. This is particularly desirable in a district which forms part of a specified area, supervision of which is the responsibility of the County Council.

Section 20(8).

Note. Where it is in the interests of the public health that infected milk should be stopped action should be taken at the source of infection to control or to prevent its distribution. In cases where this is necessary compensation should be more adequately covered centrally to prevent an undue financial burden falling on the small authorities, with consequent risk that the question of expense might be taken into consideration with other factors before a decision is made.

Part VIII—Section 24(2).

The Regulations merely say " shall not KEEP," it is suggested this paragraph should be amended to read " no animals or poultry should be ALLOWED to enter the Milk Room."

Part IX—Section 26(3).

It is considered that overlapping metal caps should now be used universally and that this sub-section should be amended accordingly.

Part X—Section 30(a).

It is considered that this section should be amended so as to prevent the leaving of crates containing empty bottles on a public highway as well as full bottles.

It is considered that this section should be exended by the addition of a further sub-paragraph (c) to provide that all vehicles used in the conveyance of milk, whether in bulk or in retail distribution, should be covered so as to provide protection from direct rays of the sun.

With regard to the Milk and Dairies (Amendment) Regulations 1954, it is considered that a definition of the terms " Hermetically sealed " should be incorporated in any consolidation Regulations.

(B) *Milk (Special Designation) (Raw Milk) Regulations*, 1949.

The comments made previously with regard to definitions and notifications to Local Authorities also apply to these Regulations.

Second Schedule.

Part 1 (c).

Under the Regulations the provisions relating to the capping of bottles permits some discretion by the licensing authority. In practice it has been found that the overlapping metal caps used by the majority of dairymen are the most suitable form of cover and it is, therefore, suggested in these Regulations (as in the Regulations previously dealt with) the use of overlapping metal caps should be made compulsory. It is also recommended that as well as the name of the producer and the designation of the milk, the day of production should be indicated compulsorily. This recommendation is made so as to enable Local Authorities to identify where failure to pass satisfactory tests occur, particularly when milk is finally delivered at some distance outside the area of production.

Third Schedule.

Section 5(a).

It is suggested that a definition of " atmospheric shade temperature " should be included, also it appears that the requirement regarding this temperature refers only to the period after the arrival of the sample at the laboratory. It is considered that the requirement should be that the samples should be kept at a temperature of 70 degrees or below.

Section 6(a).

It should be made clear in this section that " ice " refers only to water ice.

(C) *Milk (Special Designation) (Pasteurised and Sterilised Milk) Regulations* 1949.

It is considered that there is a widespread failure on the part of farmers to seal designated milk churns and it is strongly recommended that all possible steps should be taken to see that these Regulations are more strictly enforced.

Second Schedule.

Section 6.

It is considered that every sample of milk taken in accordance with Part I of the Third Schedule on the day of, but before, delivery to the consumer, should satisfy the methylene blue test and the phosphatase test and that the samples for both tests should come from one bottle. The portion required for the methylene blue test being poured off on arrival at the laboratory.

In considering these Regulations consideration should be given to the possibility of making " Tuberculin Tested Pasteurised " and " Tuberculin Tested Sterilised " complete

(Continued on page 105).

MILITARY HYGIENE IN TRANSITION*

By Air Commodore F. E. Lipscomb, C.B.E., M.R.C.S., L.R.C.P., D.P.H., D.T.M. & H., Q.H.P.

When you did me the honour of electing me as your president, I naturally began to cast about for a fitting subject on which to address you. My first reaction was to look to aviation medicine. But I rejected it as my sole topic because what is historical in aviation medicine has already been expounded *ad nauseam*, and much that is new is either too secret to mention or too technical to be understood—or both. Moreover, I was anxious to emphasise that, although aviation medicine is the most important single aspect of hygiene in the Royal Air Force and by far the most spectacular, we still have to live on the ground and face the common problems of terrestrial hygiene like everyone else.

And so I thought it might be of interest to consider how the problems of military hygiene have changed in recent times, what new responsibilities are falling to our lot and how we should prepare to meet them ; and to speculate on what lies ahead. I use the word " military " in its literal sense of " pertaining to war " and with no particular army connotation.

The views I express are my own. They are based on my knowledge and experience of the Royal Air Force and I do not profess to know to what extent, or even whether, they are applicable to the other Services. I disclaim for them any origin or support in official quarters.

There can be few of us here who do not know something of the appalling but fascinating story of how, through the ages, it has been disease rather than strategy that has been the deciding factor in war and that has so often shaped history itself. From 480 B.C., when plague snatched from Xerxes the fruits of his victory over the Greeks and saved Greece and European culture for ever from oriental barbarism, right up to 1914 when typhus, by holding the Serbian frontier, may well have prevented an early victory by the then overwhelmingly strong Austro-German armies, the story has been the same. But by World War II we had learned to control and largely to prevent the diseases which might have robbed us of victory. What one hopes was learned in *that* war, and learned once and for all, was that freedom from the crippling effects of disease now depends mainly on executive action to implement medical advice. One is encouraged when one compares the advice of Napoleon with that given by commanders in recent years. In 1813 Napoleon urged Eugene, the commander of his I Corps, to select his camp site with care but to consult his own common sense and the natives rather than the doctors. Lord Mountbatten, Lord Wavell and General Sir Oliver Leese in particular each emphasised the imperative need for good medical intelligence and strict sanitary discipline.

I believe we can now say with some confidence that never again need a commander fear that his plans will miscarry through the ravages of any of the classical diseases of war—small pox ; plague ; typhus ; typhoid, cholera and dysentery ; malaria and yellow fever.

I think there are four reasons for this :—

First, now that we know the causes and methods of spread of these diseases, our preventive measures can be logical and precise instead of empirical and in chemotherapeutic agents, antibiotics and modern insecticides we have lethal weapons to our hand.

Second, the executive at last appreciate the need to use these weapons. " We must be as practised " Lord Wavell said " in the use of our weapons against disease as against the tactics of the Enemy."

Third, in any future war every national resource will be committed. Everything that Western medicine, science and industry can give will be harnessed for war. We shall have the backing of such influence, expert advice, research and production as we have never had before.

Fourth, the ever rising level of education and the relatively high standards of general hygiene in the Western nations will make the application of preventive measures acceptable and easier to apply both to civilians and to Servicemen.

If we accept this hypothesis, we medical officers should now be able to spare some of the energies we have in the past devoted to what we may call conservative sanitation and transfer them to the new dangers that face us—man-made dangers. Indeed we must, for from these defeat might easily come.

Peculiarities of Service Hygiene

The hygiene problems of the three Services are, of course, very different even though the basic principles are the same. The Navy and the Air Force have always had their own peculiar problems arising from the conditions of life and the functions of the Service. Naturally, from the earliest days, naval hygiene has been largely concerned with the problems of shipboard life—problems of diet and ventilation for instance—in which the names of Woodhall, Lind, Blane and Trotter are immortal. The Air Force has been especially concerned with industrial, workshop or, more broadly, occupational hygiene and particularly with the physiological problems of flying. Nowadays Naval and Air Force hygiene have many problems in common. But neither the Navy nor the Air Force has ever been greatly concerned with mass sanitation in the field which has been the Army's principal problem and in which such names as Munro, Pringle, Parkes and Martin stand out. But I believe, at any rate insofar as the Royal Air Force is concerned, that the time has come when we can and must think less in terms of environmental hygiene and mass sanitation and more of individual protection.

The Importance of the Individual

We have, of course, in all three Services, for some years now gradually come to give more attention to the individual. Not only have we realised that there is scarcely any aspect of the Serviceman's work and leisure in which his health and therefore his efficiency cannot be enhanced by our attentions, but the mechanical and technical advances in the Services have inevitably led to more and more specialisation. In the Royal Air Force, for instance, there are 367 different trades. Of these no less than 234 are technical. This means that the individual has taken on a new importance and I imagine this must have been most noticeable in the Army for 50 years ago, or even less, one soldier must have been much like another and, when one fell sick, any other could replace him. But now he may be a skilled tradesman not easily replaced and his absence may cripple the team of which he is a member. In the Royal Air Force we have always had this need to consider the individual because the airman has always been a tradesman.

For some time now, in civil life, the emphasis has been shifting to the individual. This is shown by the rapid growth of occupational hygiene and by the great volume of legislation that has been introduced for the immediate benefit of the individual. In civil life, too, the routine and the details of hygiene and sanitation have been increasingly left to auxiliaries, to sanitary inspectors and others adequately qualified for their work but not medically qualified, while the medical officer of health has devoted himself more and more to organisation and administration. This is reflected in the syllabus for the D.P.H. which has been freed from much of the detailed work of the sanitary inspector, the health visitor, the analyst, the bacteriologist and even the plumber and the sewage farm attendant which it contained 20 years ago. The increasing complexity and the wider field of public health has also made greater specialisation necessary and has compelled the doctor to examine his load and to shift some of it to other shoulders.

* Presidential Address to the Services Group, Society of M.O.H., January 21st, 1955.

The Services, wisely I think, have not been in too great a hurry to follow suit, for they have not had the highly trained and efficient auxiliaries that have been available in civil life. But the change must come and the medical officer must stop wasting his time peering into drains, looking for dust on the tops of doors and chasing cockroaches round kitchens. He has more important work to do.

What, then, is this work ?

The New Problems

As warfare becomes ever more mechanised and scientific and the engines of war tend all the time to outstrip the mental and physical capabilities of the men who control and direct them, probably our greatest task will be to enable the man to make, maintain and use the machine without harm to himself and, at the same time, to bring such mental and physical fitness to his task as will enable him to extract the maximum possible effect from the machine. I am thinking, first, of course, of the struggle to equip our aircrew with the means to withstand the demands of flight at ever increasing speeds and heights. This is merely the logical progress of the special study of the " new physiological and pathological problems " of aviation which were deemed by the Flying Services Medical Advisory Committee in 1917 to demand the attention of a " specially trained body of men " and which was the chief factor that led the Committee to recommend the formation of an independent medical service for the Royal Air Force. The long struggle in the laboratory and in the air to overcome the effects of reduced atmospheric pressure, of cold, of noise, of centrifugal force and of fatigue : the task of providing the aviator with suitable clothing and equipment, with instruments that told him what he needed to know in the most readily assimilable form, with such visual aids to day and night flying as he needed, with equipment that gave him the best chance of escaping from a crippled aircraft and of surviving in the various terrains and climates when he reached the ground—much of this is historical. But it has been only the first chapter. We are now barely into the second chapter of a story the end of which no one can foresee.

Aviation Medicine

Aviation medicine is, in effect, merely the practice of environmental and occupational hygiene based on physiological and psychological principles and applied to provide safety and efficiency to those performing highly specialised tasks. Medical advice and action to this end must be doubly specialised since they involve an intimate knowledge of the technical and aeronautical as well as of the physiological and psychological aspects.

Broadly, aviation medicine aims to do six things—and you will agree that—*mutatis mutandis*—these are the aims of all varieties of occupational hygiene :—

(1) To assess all the environmental factors liable to affect the safety and efficiency of aviators ;
(2) To select personnel appropriate to the environment and the task ;
(3) To modify the environment, where possible, to protect the aviator or to increase his efficiency ;
(4) To define the environmental limitations, with and without protective devices, for the guidance of the designers of aircraft and ancillary equipment, the Air Staff and operational commanders, and the aviators themselves ;
(5) To foresee and to provide against emergencies ;
(6) To supervise all members of aircrew.

I propose to mention just a few current and future problems as they affect aircrew ; air traffic controllers ; those who directly service aircraft and those who work at the bench.

Selection, except for certain special tasks, has few new aspects. It is always subservient to the law of supply and demand. There is a limit to what you can expect of fairly standard material and yet we go on asking more and more. Given reasonable physical standards, motivation and aptitude are of supreme importance but neither are easy to assess. Until the physiologists and psychologists can develop, as they surely will, still more precise methods of selection we must try to find other ways of weeding out or protecting the misfit and the accident-prone. Much research is going on now into the causation of flying accidents and near-accidents and in this the psychologists are very much concerned.

Occupational Problems of Aircrew

The newer problems of aircrew nearly all arise from flying faster and higher—and if we are to fly faster we must go higher to lessen the penalty of kinetic heating. Until comparatively recently the speed of flight *per se* has not greatly concerned us except in connection with centrifugal force (" G ") exerted during change of direction in any plane. But with increased speeds many problems have arisen quite apart from the mechanical problems concerned with penetration of the sonic barrier. At low altitudes such relatively modest speeds as 600 m.p.h. are accompanied by the generation of kinetic heat which may raise cockpit temperature 86° F. above ambient temperatures. At speeds already foreseen, increases of 400° to 500° F. will be produced even in the rarefied atmosphere above 100,000 feet. Not until 600,000 feet is reached shall we be free of this problem. Cabins or cockpits therefore need to be cooled and at low levels in humid climates this rapidly produces fog, as the cold air condenses the moisture in the warm air in the cabin. The aircrew, who need to be kept cool in the air and on the ground in the tropics while waiting to take off, must be prepared to bale out at temperatures which will be –65° F. even at altitudes of 30,000 feet. Moreover, aircrew may take off in one extreme of climate and bale out and have to survive and evade capture in another.

The increase of " G " during changes of direction depends on the speed at which the change is made and increased speeds have resulted in a greater liability to " black out " and to the fatigue of which repeated subjection to even low values of " G " is such a potent cause. Change of posture, practice and development of anti-" G " suits have all enabled higher values of " G " to be tolerated but it seems that higher values still can be withstood only in the prone position. Research into the many difficulties of piloting an aircraft in this position has been in progress for some time. The man-carrying centrifuge designed for research into the effects of and protection against " G " will, I hope, be one of the new items of research equipment we shall see when the Group visits the Institute of Aviation Medicine next April. There is reason to believe that electro-encephalographic records obtained during subjection to high values of " G " may provide evidence which will be useful for purposes of selection.

In flight, linear acceleration and deceleration have not been of much importance in the past although in crash and arrester landings and in catapult take-offs they called for protection by harness and by modification of aircraft design such as adequately stressed, rearward facing seats. But higher aircraft speeds have changed this. Engine failure at 750 m.p.h. can now result in linear deceleration of 25G.

Problems of escape from aircraft have greatly increased at higher speeds. The ejector seat has solved many of them but blast may still cause burns of the skin, tearing of soft tissues and of the lungs and avulsion of limbs. This is understandable when you realise that at 600 m.p.h. the blast pressure is around 920 lb. per square foot and that a pressure of about 2 tons is met by the 5 square feet or so presented by the seated man. The solution may lie in the jettisonable cabin but here there are enormous difficulties in stabilisation, in " clean " separation and in deceleration which, in two stages from 600 m.p.h. to 50 feet per second reaches 50G. Only at great heights does rarefaction of the atmosphere solve this problem of blast. At 200,000 feet escape would be possible without ejection even at speeds of Mach 6.

Among the many effects of speed on vision one may mention one or two as an indication of the sort of problems that lie ahead.

At speeds above Mach 1, (the speed of sound) a compression wave is built up and remains in front of the aircraft and, the air in this wave being optically denser than the surrounding air, deviates light rays with an apparent displacement of objects seen through it and will be liable to produce rippling effects such as one sees in heat waves.

Space myopia, which merely means that when looking into space the eyes tend to be focused well short of infinity, may cause other aircraft to remain unnoticed unless or until they enter the plane at which the eyes are unconsciously focused. For so long as we have to rely on normal unaided vision for this purpose this will be serious because two pilots approaching each other at speeds already attained by fighter aircraft will probably have no more than about eight seconds from the earliest possible instant of recognition to the instant of collision, which does not allow much time for offensive or defensive action.

In addition, latency of vision may amount to a tenth of a second or more. The importance of this latency becomes apparent when you realise that two pilots, each flying towards the other at a speed of Mach 3 and emerging from cloud 200 yards apart, would collide before either could see the other. Or, to put it another way, a pilot flying into a cloud 100 yards deep would actually have emerged from the far side of it before he was conscious of having entered it—that is, before the message from the retina could register on the perception centre in the brain.

These are the sort of visual difficulties—and there are many more—which high speed flight is bringing us.

Problems of high altitude increased enormously once aircraft became capable of operating above 34,000 feet because, at that height, it becomes necessary artificially to increase the pressure under which oxygen is inspired, since the total atmospheric pressure is less than the required pressure of oxygen alone. A further 10,000 feet or so could be withstood by means of pressure masks or pressure clothing but above 45,000 feet the pressure needed seriously interferes with the return blood flow to the heart. Moreover, at high altitudes, "bends," "chokes," and other manifestations of reduced atmospheric pressure crippled a proportion of aircrew. Although pressurised cabins provide a complete solution, there is still the risk of loss of pressurisation due to structural failure or puncture by gunfire. If this occurs without the supply of additional oxygen at 40,000 feet useful consciousness lasts for only 20 to 30 seconds and death ensues within two or three minutes. Pressure clothing must therefore still be worn even in a pressurised cabin if aircrew are to survive depressurisation and if they are to be able to escape by parachute—a process which itself demands special provision against blast, anoxia and extreme cold.

But in stratospheric flight there are many other problems. The darkness of the sky increases the difficulty of spotting other aircraft which do not show up against the dark background ; the increased brilliance of the light and the reduction of light scatter throw parts of the cockpit into intense shadow and make it very difficult to read instruments. Much work has been done and still remains to be done to overcome these difficulties by means of filters, visors and attention to instrument lighting and panel layout. Above 45,000 feet solar radiation and ultra-violet light increase in intensity. At 63,000 feet body fluids boil unless protected by pressurisation. Towards 70,000 feet cosmic radiation may prove to be a health hazard. At 80,000 feet the concentration of ozone in the ambient air after compression would be well above the toxic threshold, but, in fact, compression of ambient air at that height would carry a prohibitive penalty in weight and generation of heat. Above 120,000 feet heavy nuclei rays are known to exist which have tremendous kinetic energy and power of penetration and they may well prove to be a hazard. And, in the future, we shall certainly have to face the fantastic problems of space travel and of having to exist, above 630,000 feet, in the complete absence of the force of gravity, a condition we can never simulate on the ground and only momentarily in certain aeronautical manoeuvres. It is worth recalling that man has already flown at 90,000 feet and at 2½ times the speed of sound. The absolute height record is held by Pat and Mike, two rhesus monkeys, who have survived an ascent to 190,080 feet. But, as General Armstrong says, "If monkeys can do it, we can learn to do it too."

Even if, eventually, fighter and perhaps bomber aircraft do not need to be manned, we shall always have aircrew with us in other rôles, and it is already clear that the control of guided missiles will set us new problems.

All these problems are, you may say, the concern of the research worker. Today they are. But tomorrow they will be solved and will then become *our* concern as everyday matters of occupational hygiene.

Occupational Problems of Air Traffic Control

Then there are the men who have to control aircraft movements. The evolution of fast, short range aircraft and the greatly increased number of aircraft which frequently needs homings and rapid controlled descents on to airfields have shown the vital need for carefully selected, thoroughly trained air traffic controllers who can handle aircraft in the air and on the ground calmly, quickly, incisively and accurately. To "talk down" two or three aircraft simultaneously, to store the descent pattern of one aircraft while dealing with another, to avoid panicking the D/F operator on whose accuracy and speed of information he depends, to remain calm and unflustered no matter how hard pressed he may be, and thus to give pilots absolute confidence in him are literally matters of life and death which require very definite qualities of character and emotional stability on which alone experience can usefully be superimposed. The men operating the direction-finding installations are an equally vital link in the process of aircraft control and have much the same difficulties and need much the same qualities as the controller himself. Although much has been done by the medical authorities, both psychologists and medical pilots, to ensure proper selection, no one but the station medical officer can keep these men under his eye and detect the first signs of tension and strain which prelude a breakdown and he can do this only by knowing them and understanding their responsibilities and by close association with the pilots who depend on them.

Occupational Problems of Ground Crew

To those actually servicing aircraft the principal hazards are those of noise, fuels and temperature, in addition, of course, to those which are associated with machinery of any sort. There are straightforward but by no means infallible ways of preventing maintenance crews from being sucked into jet engines or from being roasted or blasted by them or of being tattooed or peppered when jet engines are run up on hardstandings on which there is loose sand or gravel. The risk of such accidents may be increased by the interference with equilibrium which is attributed to jet engine noise. Engine noise, which in the past has been mainly the hazard of aircrew, is now a hazard of ground crew—the aircrew in their sealed and insulated cabin now enjoy relative quiet. The jet engine compressor acts as a siren and produces high sound pressures throughout the frequency range of the human ear. Whereas 100 decibels or more can be tolerated over considerable periods at the low frequencies commonly associated with piston engines, 85 decibels is liable to be harmful at the higher frequencies produced by jets. Sound levels as low as 85 decibels are not found until you get about 30 yards or more away from a jet engine even at idling revs., while, at take-off revs., 100 decibels are recorded up to half a mile away in the rear quadrant of the aircraft and, within 20 feet, sound levels are in the region of 150 decibels. This is above the threshold of pain and may well cause damage. Neither ear defenders nor engine silencers are completely effective or completely practicable but the former, on which a good deal of work has been done, can afford up to 30 decibels protection or even more in the higher frequencies. Quite

apart from its actual acoustic effects noise, especially in the higher frequencies, is an important factor in the production of fatigue.

As regards fuels I need only mention the risks of dermatitis associated with the new fuels, the difficulty of evolving protective clothing tolerable in the tropics and the new and as yet largely unknown hazards of rocket oxidant fuels and of synthetic oils containing additives which decompose at high temperatures. Airmen employed on refuelling jet aircraft have complained that they cannot free themselves of the smell of avgas and that, in consequence, they can never get a second date with the same girl. I am not sure whether this should be classed as an occupational hazard or as a protective mechanism.

It is right to mention, without labouring them, the discomforts of aircraft maintenance in very hot and especially in very humid climates and the dangers in very low temperatures where, in the absence of some form of hot air blowers, it is impossible to touch metal objects at all. Some of you will have seen the many ingenious improvisations which were used to protect men working on aircraft in Korea.

Industrial Hygiene in the Royal Air Force

Then there are the men and women in the technical trades working at the bench or in various other ways, less directly supporting the aircrews but whose work is none the less important. The introduction of new processes and new substances has now for many years called for the greatest vigilance in the Services, and this vigilance has become a greater responsibility in recent years when even the well-established processes are being carried out on a far greater scale by much younger, less experienced, less disciplined and less well motivated men in a less leisurely manner, for the long-service airman is nowadays at a premium and 77% of airmen are aged 24 or less.

Too often our attention has been called to an occupational hazard by a case of injury or poisoning —we have, in fact, been caught napping. Either we did not know that the process or substance was in use or we did not know that it was dangerous. In either case we are to blame. But nowadays new processes and new substances are being introduced at an ever increasing pace as technical advances are made and they are apt to be taken into use without a full appreciation of their dangers and, unless we are very vigilant, without our knowledge.

Ionising radiation is, of course, the new hazard which springs most readily to mind. The Service medical officer will have ultimate responsibility for protecting from harm those who are concerned in the storage, transport, maintenance and assembly of atomic weapons, and already shares with the industrial medical officer in civil life responsibility for preventing damage from radiations arising from the ever increasing use of radio-active substances in industry. Between 1948 and 1952 the production of isotopes by the Atomic Energy Research Establishment for industrial purposes alone increased more than thirtyfold. Among processes applicable to the Royal Air Force one may mention the supervoltage *x*-rays of dense objects such as castings and forgings to reveal faults; the use of radio-active elements to show up fine cracks in the surface of metals—as in airscrews for instance; the measurement of thickness of metal articles or the level of the contents of containers by passing them between a radio-active source and a meter; and the addition of radio-active sources to liquids to detect leakage.

Admittedly civilian industry will use a much greater number of potentially dangerous processes than will the Services. But it may well be that one Service will use a greater variety than any one industry and the Service medical officer will need both vigilance and a breadth of knowledge. One had thought that the lessons learned so tragically by the Curies and by the uranium miners would not need to be learned all over again but the discovery of the casual way in which potentially dangerous accumulations of training sources have already been treated makes one wonder.

Although I cannot, for obvious reasons, consider their hazards specifically, I must mention the risks to those preparing, handling, transporting and servicing biological and chemical weapons. I presume that, in any future war, as in the last, we shall be prepared to retaliate in kind if chemical weapons are used against us and I imagine that the same would apply to biological warfare. That would mean that we should be holding these weapons in readiness. Enough information has been released concerning the newer gases and the nerve gases in particular to make it quite obvious that their high toxicity holds many dangers for those concerned with them. Obviously the same would be true of biological weapons. The mere possession of these weapons will necessitate great vigilance by Service medical officers.

Before long we shall have to be thinking of hazards which are at present of little more than theoretical interest, for instance the effect of shock waves from aircraft flying very fast. An aircraft flying at Mach 1·5 (say, at 1,125 m.p.h. at 100 feet) will generate shock waves having a pressure of 100 lb. per square foot. That is equivalent to very little less than 170 decibels. It is not difficult to imagine the damage that a completely unarmed aircraft flying low at very high speeds could inflict on exposed troops on the ground. The speed of sound has already been exceeded at a height of 50 feet, so this is not such a very fanciful thought.

One is also tempted to wonder what hazards may accompany the increasing use in industry of ultrasonics—that is, acoustic vibrations of frequencies greater than 10 to 20 kilocycles per second. When liquids are irradiated by high intensity ultrasonics, enormous acceleration of particles and molecules is caused, accelerations of the order of 10^5 times "G" and cavitation results, the liquid being literally torn to pieces. Although ultrasonics of the order of a million cycles per second have been claimed to have therapeutic uses, there is as yet no evidence that air-borne ultrasonics will prove harmful except to the ear and, to the ear, it is intensity that matters rather than frequency.

Training

Obviously then there is need to consider training not only of medical officers in the Services, but of all doctors for all will have civil defence responsibilities and, in this age, all will benefit from some knowledge of occupational hygiene for there can be few patients whose ills are not in some way associated with their occupation.

First, modern preventive medicine should be given a far more prominent place in the curriculum of the medical student. In a foreword to Prof. Brockington's "The Health of the Community," Sir John Stopford stressed the need for "the attention of students to be directed throughout the whole period of study to both the promotion of normal health and the prevention of disease." It is certainly my impression that the newly qualified doctor has something not far from contempt for hygiene and preventive medicine and medical administration which he is apt to regard as strange and only quasi-medical functions. Although "the body in health" is supposed to be the theme in the teaching of anatomy and physiology, that is about as far as the teaching of health goes. That is the first thing to change and the change can hardly be expected until those who practice preventive medicine receive greater recognition than has been their lot up to now.

As regards training within the Service, I personally believe that this should be mainly what we call "on the job" training superimposed on a formal course for the Diploma in Public Health for which almost all permanent non-specialist officers should be able in future to obtain study leave. I do not believe that the Services, or at any rate my own Service, can hope or should attempt to compete with the recognised civilian teaching establishments. But it will always be necessary, of course, for the Service to indoctrinate and to build, on the solid foundation of civilian training, a superstructure suitable to its own particular needs.

Then there is the question of the inclusion of new subjects in the syllabus for the Diploma in Public Health, and of what should be left for the Diploma in Industrial Health. I notice that the Society, in its Memorandum on the Functions of the M.O.H., describes his concern with civil defence problems as " evanescent " and makes no further mention of them. I do not believe this is wise or realistic. In any future war the M.O.H. will have new responsibilities at least as heavy as will his colleagues in the Services and, if the chances of war are great enough to justify maintaining war potential on anything like the present scale, they are great enough to require the M.O.H. to be ready to shoulder his advisory, supervisory and organisational duties in connection with civil defence. He will need some knowledge of radiological, chemical and biological warfare if he is to do this. Indeed the very recognition of biological warfare will be very much the M.O.H.'s responsibility. Therefore he must at least learn the essentials and, incidentally, for this to be possible, the Ministries must free sufficient information. Secrecy is all very well but what needs to be known for purposes of protection should not lightly be withheld.

One is tempted here to wonder whether there is a need for a diploma in military or war hygiene. One has heard it advocated from time to time and I recently heard it suggested by a civilian well known in public health circles. Diplomas, like committees, are already too numerous and the right answer is probably to include the essentials of war hygiene in the D.P.H. syllabus, at least as an elective subject.

Medical Administration

In the Royal Air Force the importance of hygiene has been emphasised by the paradoxical step of ceasing to recognise it as a speciality. I believe that every medical officer (except perhaps the purely clinical specialist) is in fact a medical officer of health, with the accent on the health of aircrew, that he should obtain a qualification in public and perhaps also in industrial or tropical health, and that such a qualification should eventually be virtually obligatory for all administrative medical officers in senior ranks. This is an ideal. But that it is not a completely impracticable ideal is suggested by the fact that, of medical officers holding administrative appointments in the R.A.F. today, more than 80% of air commodores and above and more than 40% of group captains and wing commanders are so qualified. It seems to me a truism that those who administer a health service (and where is a truer health service to be found than in the Forces ?) should be trained and qualified in public health ; and it seems equally obvious that the training needs to be in the practice of preventive medicine and that years spent in the narrow confines of a clinical specialty is not the best training for a senior administrative post. I myself feel some concern, indeed, lest the station medical officer and, to a lesser extent, more senior medical officers, be compelled to sacrifice attention to preventive medicine in the face of the increasing claims of families—a type of practice which naturally has a strong appeal to the junior medical officer with the bedside mentality which his medical school has fostered ; and, moreover, one which will manifestly earn him the most immediate personal kudos just as its neglect is likely to bring immediate discredit.

In 1947 the then Chief Health Officer of the Union of South Africa, Dr. H. S. Gear, in an article on " Army Health and Medical Administration " in the *Lancet*, emphasised the need for the medical administrator to be trained in hygiene in order that he might be accorded the same traditional, emotional, professional and social eminence as is enjoyed by the surgeon and the physician. In a memorandum recently adopted by the Council of this Society on postgraduate education in public health, it was recommended that the D.P.H. curriculum should include the study of occupational health in some detail and that training in administration, which has always been one of its main purposes, should be extended and developed to encompass the many new aspects of social welfare and health services including those of industry. That, surely, is just the sort of basic training that the Services need for their medical administrators. I might add that when all our senior administrative officers are so trained and qualified, then indeed we shall be able to endorse the recent claim by the British Medical Association that all medical officers of and above the rank of brigadier or its equivalent are in fact specialists.

It is, of course, desirable that medical officers should not specialise too early, for the clinical specialist in a technical service needs the foundation which he can get only as a general duties medical officer. The best physician or surgeon —and perhaps particularly the best psychiatrist—will get the best results only if he knows his man and what that man needs to be fit for. But the higher professional standards demanded of clinical specialists nowadays, as well as our immediate need for them, not only make postponement of specialisation almost impossible, but also make it very difficult for specialists to obtain and maintain their first-hand knowledge of occupational requirements. They also make it more than ever undesirable that the highly qualified and highly experienced clinical specialist should, as he approaches the peak of his efficiency and value, be transferred to administrative duties in which he has no training, no qualification and no experience and for which he probably has no taste. Even if he overcomes these deficiencies and conquers his prejudice against administration and in favour of his own specialty and succeeds as an administrator, he is still a clinical specialist wasted. To him a full career should be open in his own specialty.

The officer who is to fill the higher administrative posts in a health service should not normally be one whose career has been in a clinical specialty. He should be a general duties medical officer (and the better clinician he is and the wider his experience the better) who has a solid foundation of occupational hygiene in his Service, who has had a thorough and formal training in hygiene and who has gradually learned to apply his knowledge to larger formations and a greater variety of problems and at higher levels of responsibility.

Conclusion

I am afraid this has been a rambling and inordinately long discourse in which I have reluctantly felt bound to sacrifice precision and to withhold topical examples (many of them known to some of you) in the interests both of diplomacy and security. You will, I hope, be able to apply my generalisations to the particular problems that are known to you.

The burden of my theme is that we in the Services exist primarily to prepare for war and to provide our commanders with a Force that is as fit as our art and science can make it and that it is protected from sickness of every kind. The greatest threat is, I think, no longer likely to be from epidemic disease but rather from the effects of the weapons and processes man has devised. If our Forces are to use them safely and with maximum efficiency, it can only be as the result of our unrelenting and imaginative efforts to give every man concerned with them the physical and mental fitness and protection he will need. By familiarising ourselves with new weapons and new processes we must anticipate the dangers inherent in them.

We cannot, of course, afford to forget the epidemic diseases altogether for they may still pounce on us in the form of biological warfare or out of the desolation resulting from atomic and thermo-nuclear warfare. They may even lurk in our very confidence and in our relatively new found freedom from them and the resulting lack of immunity. But protection from them is now largely the well-defined work of engineers and sanitarians to whom, under our general supervision, we can safely leave them.

We have new responsibilities. Our potential contribution to operational efficiency has never been so vital, nor has it ever been so anxiously sought by the executive. If we are to play the great and decisive part that is cast for us we must, without forgetting the lessons of the past, think in the future.

A SURVEY OF THE MAIN MEDICAL CAUSES OF REJECTION FOR NATIONAL SERVICE*

By J. A. H. Lee, M.B., B.SC., D.P.H.

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For the past two years I have been working on a series of studies of the health and social conditions of men called for National Service. This work has been made possible by the Research Board for the Correlation of Medical Science and Physical Education, to whom I am most grateful for their continued interest and support. These studies are not yet completed, and this lecture is something of a preview—partly of the conclusions that I have reached so far, and partly of the conclusions that I may come to when I have analysed all the evidence. At this stage much is tentative. I am particularly glad to be able to talk to this Group at this time, as I hope to have the benefit of your comments and discussion when I have finished.

The present study, from which all the data of my own that I will be showing you is drawn, followed a much smaller "pilot" study. For this I went into the available information in some detail. One thing became clear immediately—it was of little use studying National Service recruits once they were in the Services in order to find out about the incidence of disease. The rejection rate of those examined is about 18 per cent., and therefore all those with major defects will have been removed. Further, this rejection rate varies substantially from one part of the country to another. As the system of medical examination is arranged on a uniform plan, with the same standards in use everywhere, this meant that the "quality" of the recruits must vary from one part of the country to another. Hence my studies were forced to take account of this, and, in the end—in order to fit in with my budget of time and money—data was collected about men recruited from a wide area of the Home Counties north of the Thames; from North-West London; from South-East Lancashire and part of Cheshire; and from Clydeside, with a few from a wider area of West Scotland. The Home Counties area was predominantly rural, but included two prosperous industrial towns. I like to think that it might be regarded as a model of the England of the future—with a fair balance between town and country, and with reasonably good standards of housing and amenities. The sample from North-West London was taken for two reasons—another study had been made on National Service recruits by a different technique (Logan and Goldberg, 1953), and London, although an area of intense urbanisation, has never had vital statistics showing the same pattern as those of the other conurbations. Finally, South-East Lancashire and Clydeside were taken as representing typical large industrial areas. Clydeside had the additional advantage that a sample of its young men had been studied by Ferguson and Cunnison (1951).

The work of collecting the data was done over the year June, 1953, to June, 1954. This was necessary to avoid—or at least to have some degree of control over—the complications due to the large number of intelligent young men who are called up in the summer holidays having been deferred until the end of the previous school or academic year. For one centre—that in the Home Counties—there is a complete picture over the year. For the other areas I have had to make do with much shorter periods of observation, and to be correspondingly cautious in my interpretation. I have information on all the men who were seen by the Boards during the periods under observation, and I should thus be able to give a picture of a true cross-section of the community at this age. (This will exclude those whose call-up is suspended because of their occupation—such as miners and seamen; and also those excepted from registration—such as the blind and the mentally defective. I have a record of some of those who are badly crippled, although most of them are not registered. Thus all the following discussion will exclude certain of the more heavily disabled men. Most of the badly disabled men recorded have not, in fact, come for examination, but their cases, with some details, have been brought before the Chairmen of the Boards. This also applies to men ill and in hospital.) In order to avoid flooding my recording system with unnecessary information, for only one-quarter of the fit men were full details taken, while full records were made of all the unfit. The samples taken were large enough for a picture of the complete population to be reconstructed.

The numbers of men rejected per 1,000 examined for all causes and for certain specific ones are given in Table I.

Table I
Rejection Rates per 1,000 Examined, for Certain Causes. Samples from the Home Counties, North-West London, South-East Lancashire and Clydeside. (Data from the Present Survey)

	Home Counties	North-west London	South-east Lancashire	Clyde-side
Rejection rate for all causes ...	167	177	216	241
Rejection rate for E.N.T. conditions	26	33	42	62
Rejection rate for all forms of tuberculosis	8	11	15	36
Rejection rate for all causes apart from these	133	133	159	143

It is clear that there are substantial differences between the men coming before the Boards in different parts of the country. In the second and third lines of Table I, two of the causes of rejection—diseases of the ear, nose and throat, and tuberculosis (all forms) are given separately. These show the same gradation as the total rates. In fact, if these two conditions are removed, the differences between the regions are more or less removed. Thus it seems that, considering only the numerically important medical defects, the number of men with these is probably about the same over the country, with the exception of ear conditions and tuberculosis. These vary widely from place to place.

Turning now to the general picture of the medical causes of rejection, and dealing only with the sample of men from the Home Counties; the rejection rates due to the different causes per 1,000 men examined are given in Table II.

Table II
Rejection Rates per 1,000 Men Examined. Home Counties Sample

Mental defect (1)	20
Emotional instability (2)	24
Ear, nose and throat conditions	26
Defects of vision	19
Physical development	6
Orthopaedic conditions	25
Allergic disorders (3)	12
Skin conditions (3)	7
Cardiac conditions	10
Herniae	6
Tuberculosis (all forms)	8
Chest conditions (4)	4
Epilepsy	5
Endocrine conditions	1
Digestive conditions	6
Genito-urinary conditions	2
Miscellaneous conditions	2
Total incidence of defects that would cause rejection (5) ...	182
Actual rejection rate in this sample (6)	167

(1) Including men with a degree of instability coupled with their mental defect.
(2) Excluding the above, and excluding those with asthma or epilepsy.
(3) Including bronchial asthma and allergic eczema.
(4) Excluding bronchial asthma and pulmonary tuberculosis.
(5) All rates are calculated before the figures are rounded off.
(6) Some men have two or more quite separate conditions that would lead to rejection; therefore this rate is lower than the sum of the rates for the separate defects.

* Paper read to a joint meeting of the School Health Service Group, Society of M.O.H., and Medical Officers of Schools' Association, London, November 26th, 1954.

I should like to spend a little time running over these, and discussing their relative importance. At the top of the list there are the men rejected on grounds of their low intelligence. Mental defectives under statutory supervision are not required to register. Most of the men in this group are above the level of intelligence required for ascertainment, but below that required for the lowest category of Service employment. Some of low intelligence are rejected because it is not thought that they are sufficiently emotionally stable for Service conditions. This rate cannot be used as a means of measuring the proportion of men below a certain level of intelligence.

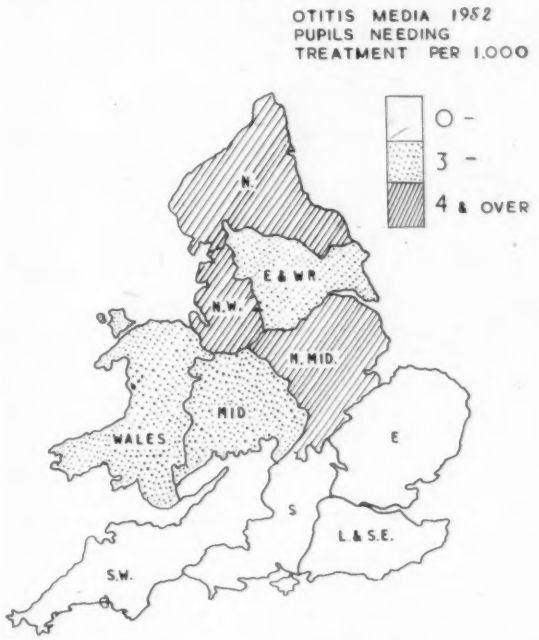
The next group are those rejected because of emotional instability.* From this have been excluded those men listed as unstable and who were suffering from either asthma or epilepsy. About 2 per cent. of the possible recruits for National Service are rejected on this ground. The Boards see each man for about half an hour. This is clearly not long enough for a detailed assessment of his psychiatric condition. But where the Boards are in any doubt about a man's condition, they obtain consultant opinion. Thus, I think we can take it that this substantial proportion of young men have already had some significant psychiatric disturbance, or are clearly liable to need psychiatric care at any time. These high figures have been broadly confirmed by the findings in other areas. In the complete study, they have been based on the findings of about 40 general medical practitioners, and cannot be ascribed to individual vagaries in the diagnosis of psychiatric disorders. This is one of the highest rates of any of the groups of diseases. On consideration of the small inconvenience that many of the other conditions cause, I believe that disorders of the emotions are the most important cause of substantial disability and unhappiness among this age group. There are as many cases of psychiatric disturbance as there are of all the "orthopaedic" conditions. If the effects on a man's life of any significant emotional disorder and those of a missing semi-lunar cartilage are compared, it seems clear that the psychiatric disorder is going to have a much more lasting and severe effect. And the emotional disorders are much more common than this, or many other physical conditions.

Further verification of this can be obtained from other studies of morbidity. Stocks' (1949) study, based on the Social Survey, showed that overt psychoneurosis was about as common as the common cold, and that further symptomatic disorders, such as headaches, were about as common as the definite psychoneurosis. In his study of the records of a series of general practitioners, Logan (1953) showed that, for several practices over a period of a year, there were 240 first consultations per 1,000 patients because of common colds, and 78 first consultations because of psychoneurotic illness. The diagnosis of a cold was only three times as common as that of a psychoneurosis.

When the probable importance of a cold in comparison with a psychoneurosis is considered, these observations seem to fit in with the findings of Stocks and of the present study. What is to be done about it I am not sure. If the simple elucidation of symptoms and explanation is indeed largely curative, there is surely a case for a large adjustment in the training of medical students, so as to make them efficient in this type of work. The findings, among young men, certainly raise questions as to the adequacy of present mental health care, and the working of the system of child guidance clinics.

Ear, nose and throat disorders I have briefly mentioned. This group is almost entirely made up of chronic otitis media. With the development of modern methods of treating acute otitis media, I hope that this condition will have been substantially reduced in the near future. Certainly it would be of interest to look at a sample of National Servicemen in, say, five years' time. That would be of men born in 1941, who would have had the benefit of penicillin treatment for most of the time that they were liable to otitis media, and of active sulphonamides for all of it. I mentioned earlier that there is a substantial regional variation in the condition. The map (Fig. 1) shows the regions of England and Wales giving the different incidences of otitis media needing treatment, as found by the School Health Service in 1952.

FIG. 1.



Rejections due to defects of vision are a mixed collection. There are those with such poor vision that they could not usefully be employed in the Services, and there are those exposed to a special risk of losing their sight, *e.g.*, those with monocular vision. The criterion for rejection is not the unaided acuity of vision, but the correction needed. This is to exclude those with a special liability to detachment of the retina. The figures cannot be taken as giving a picture of the civil problem of poor vision without further analysis.

Rejections because of physical under-development form a small group—these are men in whom no organic disease has been discovered, but whom the Boards consider as not having the physical strength or endurance to be able to make a useful contribution to the Services. Much more common than rejection are the occasions when the Boards pass a man into the Services with a restriction on the jobs that he can do, because of his poor physique. About half of these become normal (in the opinion of Service medical officers) after a period of basic training. For the average man this is a period of substantial weight gain, presumably under the influence of the ample physical exercise and adequate diet.

The rejection rate because of the general group of "orthopaedic" conditions is another of the high ones. These form a very miscellaneous group, as is shown in Table III, which gives the breakdown by type of condition.

The importance of poliomyelitis as a producer of crippling is of interest, particularly in contrast with the virtual disappearance of osteomyelitis. Clearly the improvement in social conditions, and the availability of sulphonamides and effective surgery has protected these boys from this condition. They were mostly born in 1935 and 1936, and so have not had the benefit of penicillin until they were in the middle school years. Bone and joint tuberculosis has almost disappeared as a cause of crippling. From the whole sample from the Home Counties, about 4,300 men, there were four cases. These have been included with the other cases of

* This is, of course, in relation to Service employment. However, the Service standards are not extravagantly high, and I believe that rejection for this cause does indicate at least a significant degree of disability.

TABLE III

NUMBERS OF MEN REJECTED BECAUSE OF "ORTHOPAEDIC" CONDITIONS FROM THE HOME COUNTIES SAMPLE OF 4,358 MEN

Cause	Number
Poliomyelitis	12
Osteomyelitis	5
Varicose veins	5
Deformities of spine	10
Lesions of congenital and unknown cause	31
Miscellaneous specific causes	7
Accidents	38
Total " orthopaedic " conditions ...	108

tuberculosis. The really important causes of " orthopaedic " defect in this group are thus the cases resulting from congenital causes and from accidents. This latter collection of fractured femora, tibias and fibulas, and fractured skulls form the largest group of these conditions. I am firmly of the belief that if this toll of disability—and none of these men is rejected unless he has some present disability sufficient to render him useless in the Services, or at least the near prospect of such disability—were due to some infective or metabolic cause, there would be an outcry from the profession and by the public for it to be controlled and abolished as an offence to our society. The figures for accidental death are as unsatisfactory as those for morbidity. For males between the ages of 1 and 18 years, over the period when these young men were in this age range, more than one-fifth of the deaths were due to violence. (The influence of the war upon this was slight.) In Table IV the effects of poliomyelitis and accidents are compared.

TABLE IV

OF 5,000 MALES WHO HAD THEIR FIRST BIRTHDAY IN 1936, THE FOLLOWING HAD DIED OR HAD BEEN DISABLED FOR NATIONAL SERVICE BY THE TIME THAT THEY REACHED THEIR EIGHTEENTH BIRTHDAY, BECAUSE OF POLIOMYELITIS OR ACCIDENTS

	Died	Disabled
Poliomyelitis ...	1	13
Accidents	33	40

I am not advocating that our youth should be cossetted, and protected at every turn, but I would submit that our present failure to control this cause of death and disability among young people is a disgrace to a civilised community.

Coming now to the numerically less important conditions ; the allergic disorders consist mostly of the asthmas, some of them complicated by eczema. The skin conditions (which, for this purpose, exclude the allergic eczemas) are mostly cases of acne of some severity. There is also a number of cases of psoriasis.

The cardiac conditions are surprisingly numerous, especially as nowadays much care is taken to exclude the " innocent murmur " from the causes of rejection. In the sample from the Home Counties, the cases rejected were about equally divided between those that were judged to be of rheumatic origin, and those that seemed to be congenital. This is quite different from the proportions found by a survey of school children in Glasgow (Rogan, 1952). Here the ratio was of the order of 1 congenital to 3·5 rheumatics. Assuming that the incidence of congenital disease does not differ significantly from one part of the country to another, this technique offers a simple method of obtaining estimates of the relative amounts of chronic rheumatic heart disease, in the different areas. This cannot be done with my present data as I have a large enough sample only from the Home Counties. It has been shown that one disease that is predominantly streptococcal—chronic otitis media—varies in a definite geographical pattern. It is known (Knowelden, 1949) that rheumatic heart disease has not the same incidence from area to area. It would be most interesting to try this method, and see if rheumatic heart disease does follow this pattern.

Rejections because of herniae were not very important, and had even less importance from the point of view of civilian morbidity. Almost all of this group were of the congenital, indirect type.

The tuberculosis rates have already been discussed—they are made up of frank pulmonary disease, recent pleural effusion, and cases discovered by the Mass Miniature Radiography. Any man who has had active disease in the last five years is excluded, and many of those discovered by Mass Miniature Radiography have only minimal lesions. A point of interest is that of the final collection of cases of definite pulmonary disease, only about 60% have been diagnosed before the man was considered by the Board. The rest were picked up by the Mass Miniature Radiography. Thus at any one time, nearly half the cases of active pulmonary tuberculosis are not diagnosed and are uncontrolled. The continuing opportunities for infection are obvious.

The remaining conditions only affect small numbers of men. The rejections because of digestive disorders are almost all due to two things—duodenal ulcer, and complicated appendicectomy. Appendicectomy is so frequent that the few cases of ventral hernia resulting represent a very small incidence per 1,000 cases operated on. An odd finding is that 3% of the men in this sample had had their appendices removed.

The incidence of epilepsy is in agreement with that found by other workers studying groups of Service recruits. It is much higher than that found by any of the people who have studied epilepsy among school populations. I think that this is due to differences in reporting the condition, rather than to real differences in incidence. Of course the Medical Boards require a certificate from the man's doctor before accepting his statement that he suffers from epilepsy.

Thus we have, as a result of this survey, a picture of the causes of permanent disability among young men approaching the years of adult life. Some few of the most seriously disabled will not be included, but they would not affect the general picture very much. By contrast with what might have been the condition of this cross-section of the population, this kind of survey shows us how far society's care of them in their years of dependence has been successful. By contrast with what might be their condition, if all the causes of preventable illness were removed, it shows us how far we have to go. I believe that this kind of study will form a valuable tool in the planning of future policies in preventive medicine.

Where do we go from here ? There is much more data still un-analysed ; data on schools ; on the boys' intelligences ; on their jobs ; and even on their ambitions. There are further investigations in hand. For a sample of the boys, we have fitted together their school health record cards with the findings of the National Service Boards. This has given some interesting results, and we hope to follow this up on a much wider scale.

In conclusion, I should like to express my gratitude to the Ministry of Labour and National Service for the facilities that they made available to me. All the views expressed are, of course, my own, and have no official sanction. I should also like to express my thanks to Prof. Mackintosh and the other members of this Department for much help and valuable criticism.

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THE MARCH COUNCIL MEETING

(Continued from page 96)

designations subject to a single licence and not a combination of two grades as at present. Under the present requirements, a dealer must complete two application forms to sell Tuberculin Tested Pasteurised Milk which in effect cover the sale of three types of milk. The adoption of this suggestion would not only reduce by a considerable amount, the number of application forms to be sent out by Local Authorities and the number of licences to be prepared, but it would also remove some confusion in the minds of applicants who are required to complete the forms.

National Dairymen's Association.—At the request of the National Dairymen's Association, the Council authorised the Standing Committee for Food Matters to receive a deputation from the Association so that the administration of the Pasteurised Milk Regulations, 1949, could be considered, particularly in connection with the handling of flavoured milks in pasteurising dairies. It was also agreed that the Standing Committee for Food Matters should consider certain aspects of the sterilisation of milk vessels arising from a discussion on this matter at a meeting of the County Group of the Society.

Diploma in Public Health.—The President reported that she, together with Profs. C. Fraser Brockington and J. Mackintosh, had attended a meeting of the General Medical Council, and had discussed with them possible amendments to the syllabus for the Diploma in Public Health.

Sanitary Inspectors' Working Party.—It was reported that representatives of the Society had attended a meeting of the Working Party at which had been discussed the Minister's proposals for setting up an examination board for sanitary inspectors. As a result of the meeting it was anticipated that the Ministry would be amending its proposals, although it was not anticipated that the position relating to the representation of the Society would be altered in any way.

Compensation of Poliomyelitis Contacts.—At the request of the East Midland Branch of the Society the question of the lack of regulations authorising the payment of wages to close adult contacts of poliomyelitis cases was considered. The matter was discussed at length and eventually it was agreed that a letter be addressed to the Chief Medical Officer of the Ministry of Health, requesting that this matter should form a subject for discussion at a meeting of representatives of the Ministry and of the Society.

British Veterinary Association.—The President reported that she had had a letter from the President of the British Veterinary Association suggesting that it might be advantageous to arrange a joint meeting so that the views of the Association on the role of veterinary surgeons in meat inspection in this country could be clarified. The President asked that the Council should decide upon the reply to be made to the President of the B.V.A. It was agreed that while the Society was perfectly prepared to meet representatives of the B.V.A., it would only do so at a round table conference at which the British Medical Association and the Sanitary Inspectors' Association were also present.

British Medical Association.—It was reported that certain of the members of the British Medical Association who were present at the meeting had agreed to nominate Dr. J. B. Tilley and Dr. H. D. Chalke as representatives of the Public Health Service on the Council of the British Medical Association. The Council agreed to support these nominations. The Council also agreed to support the nominations of the following to serve as representatives of the Public Health Service at the A.R.M. of the B.M.A. : Drs. J. A. Stirling, C. Metcalfe Brown, J. S. G. Burnett and Elspeth Warwick.

Representation

The following were appointed representatives of the Society for the purposes named :—

Central Medical Recruitment Committee.—Dr. C. E. E. Herington.

Central Council for Health Education.—Drs. H. C. Maurice Williams and J. D. Kershaw.

Conference of Advisory Councils on Occupational Health.—Drs. J. S. G. Burnett and F. Hall.

Cremation Society Annual Conference.—Dr. R. L. Leask.

Registered Plumbers' Association Annual Meeting.—Dr. W. Cunningham.

Sanitary Inspectors' Association Annual Conference.—Dr. W. G. Evans.

Life Membership.—The following members of the Society were nominated for Life Membership : Drs. K. E. Tapper, T. Ruddock West, R. J. Cyriax, Jean M. Orkney, and D. E. Morley.

APPENDIX

THE ROYAL COMMISSION ON MENTAL ILLNESS AND MENTAL DEFICIENCY

Memorandum of the Society of Medical Officers of Health

The Society of Medical Officers of Health welcome the opportunity of submitting this memorandum upon the law relating to mental illness and mental deficiency in accordance with the terms of reference of the Royal Commission. It is fully appreciated that both mental illness and mental deficiency are grave social problems, but as they are two distinct clinical entities the memorandum is in two parts dealing with mental illness and mental deficiency respectively.

In the administration of the law relating to mental illness and mental deficiency, the members of the Society are concerned primarily with (a) the taking of initial proceedings for the provision of care and treatment for persons suffering from mental illness, (b) making arrangements for the care and after-care of persons suffering from mental illness (Section 28, National Health Service Act 1946), and (c) ascertaining what persons in their area are mentally defective, of providing suitable supervision or taking steps to secure that the defectives are placed under institutional care or guardianship, and of providing training and occupation for those defectives under supervision or guardianship who are in need of it.

It should, also, be mentioned that the Society includes in its membership School Medical Officers. They have the duty of deciding which children of school age are ineducable because of mental defect and which need education, because they are educationally sub-normal, in special schools. They have, also, the duty of deciding which children of school age need special education because of maladjustment.

Apart from these administrative functions, the members of the Society have a deep interest in the maintenance of good health both physical and mental, and the prevention of ill-health, again both physical and mental. Prevention of a major breakdown can often be effected by treatment in the early stages. The fear of certification under the Lunacy Acts is deep-rooted and often has the effect of postponing, until too late, the seeking of psychiatric, or even medical, advice. The Society, therefore, would support any proposal which would change the emphasis from treatment under certification to treatment on a voluntary basis.

PART I—MENTAL ILLNESS.

(a) *Aged and senile dements.*

Mental Illness is the largest clinical entity occupying hospital beds, and though roughly one-third of all hospital beds are set aside for this condition, patients seldom obtain hospital treatment until a crisis of some kind occurs. This is due mainly to the fact that in many parts of the country the number of "observation" beds is quite inadaquate, chiefly because, being occupied by senile cases, they have been diverted from their proper purpose.

The Society is of the opinion that it is in the interest of a mental patient that he should be admitted in the first place to a mental observation ward in a general hospital, rather than taken direct to a mental hospital under the provisions of sections 14 & 16 of the Lunacy Act. In many patients, the mental symptoms clear up after a few days, in others the mental symptoms are but the final stages of a fatal illness from which death releases them shortly after admission. It is wrong that in such cases, the patients or their relatives should be left with what is undoubtedly regarded as the stigma of having been admitted to, or died in, a mental hospital.

For various reasons, the proportion of elderly patients to whom the mental health officers are called is increasing. Now, the number over 65 years of age is about 33 per cent. The Society supports the views expressed in the circular of the Ministry of Health (R.H.B. (50) 26.) that these patients should be dealt with in psychiatric geriatric units, and that special provision of various kinds of the type described

should be made for these aged patients. It is also recommended that facilities should be provided at the psychiatric geriatric clinics for out-patient attendances. If these were provided, health visitors, mental health workers and psychiatric social workers could send patients there for advice and sometimes avoid their admission to an institution. The possibilities of home treatment for elderly people with mild delusions or general confusion have never been given, in this country, adequate consideration. Even if some financial help towards their maintenance had to be given, it would be an economy to public funds compared with the cost of their maintenance in a mental hospital. In all cases, the patients would welcome this, and—in most cases—their relations would also do so.

It is, however, the experience of our members that about 20 per cent. of patients over 65 to whom the mental health officers are called, are grossly disturbed and need active psychiatric treatment which can best be obtained in a mental observation unit or a mental hospital. Our previous remarks about psychiatric geriatric units and home treatment apply to the other 80 per cent.

Another method of dealing, outside the Lunacy Act, with the elderly mental patient who is in need of institutional care might be by an extension to this type of patient of the provisions of Section 47 of the National Assistance Act, 1948.

(b) *Urgent Admissions.*

There seems no reason why the procedure under Section 11 of the Lunacy Act of 1890, the " urgency order " and under Section 20, the so-called " three-day order " should not be assimilated, one order, largely on the lines of Section 11 and applicable to all kinds of accommodation where detention is permitted, being provided. The period of detention, however, should be capable of being extended from 7 to 21 days on the Order of a Judicial Authority. In making this recommendation that all arrangements for the admission of a mentally ill patient be gathered together into one comprehensive section, it is also recommended that adequate provision be made for the protection of the officer taking the necessary action, whether he be the general medical practitioner, a medical officer of health, or a lay officer.

(c) *Voluntary Admissions.*

The provisions of the Mental Treatment Act 1930 have been of great value, and everything possible should be done to encourage patients with insight to apply for voluntary treatment. It is unfortunate that owing to inadequacy of accommodation some mental hospitals have had to limit their admissions to certified patients.

(d) *After-Care.*

The re-admission rate is high and it is only too true that many patients on discharge from a mental hospital are left without anyone to whom they can apply for help and guidance or what would be even better, without anyone being charged with the duty of " keeping an eye " on them.

This is not an easy matter on which to legislate. There are some patients who do well, whose main desire is to forget entirely that they have ever had a mental breakdown.

But the fact is inescapable that wise guidance at the proper time can often prevent a lapse of such severity that re-admission for further treatment is essential.

It is the opinion of the Society that much more attention should be given to this matter. We think that by some means discharged patients, and their relatives, should know exactly what they should do if there is a recurrence of premonitary symptoms and that every effort should be made to secure the consent of every patient, voluntary or certified, about to be discharged, to his being visited by someone from either the mental hospital or preferably from the local health authority.

(e) *Temporary Patients.*

Section 5 of the Mental Treatment Act, 1930.

This section, while providing a real advance in the care of mental patients, could with advantage be modified to provide for many, if not all, patients other than voluntary ones. They would be under observation for a specified period of observation, at the end of which a definite grading would be made. Extra security for the patient could be provided by the giving of two certificates by independent doctors, one of whom should preferably be the patient's own doctor. The Judicial Authority when actually making the Order might be empowered to request the presence of one (or both) of the doctors.

(f) *Discharges.*

Considerable trouble is caused by the unreasonable recourse by relatives to the provisions of Section 72 of the Lunacy Act 1890, to secure the discharge of a patient. Such recourse is very frequently not in the best interest of the patient or the community and leads to unnecessary re-admissions. It is suggested therefore that the Local Health Authority be given the power to petition against a release ordered by a relative, and the matter decided by a Judicial Authority. The power would not be frequently used but the knowledge that the Local Authority could so petition would be a deterrent against unreasonable and harmful use of this section and a protection to the community against certain cases of mental illness who become a public nuisance.

PART II—MENTAL DEFICIENCY.

The liberality of thought which followed the coming into force of the Mental Treatment Act of 1930 should be encouraged in respect of mental deficiency. It is true that following upon the report of the Royal Commission of 1904 the fundamental difference between mental illness and mental deficiency is now fully recognised but the legal enactments in relation to mental deficiency, influenced to some extent by the Lunacy Act of 1890, are in need of revision. It is recommended that in order to remove certain administrative difficulties, to simplify procedure and introduce a greater degree of flexibility in dealing with mental defectives the legal enactments should be revised and be the subject of a Consolidating Act. In such an Act certain changes could be introduced which though not of major import would take into account the following recommendations.

(1) *Definitions.*

Certain terms formerly used are now of little value and should be abolished so far as legal enactments are concerned. In particular the term " moral defective " should be reconsidered. Any term used in relation to mental defectives should embody the concept of social deficiency due to mental defect.

(2) *Ascertainment.*

Apart from the grosser forms of mental deficiency which are obvious from a very early age, the majority of cases are first noted during early school life when the defective child lags behind its fellows. In order to prevent unfair exclusion from the educational system it is most important that the assessment of a child's mental ability and its possible development should not be hurried. The early recognition of a mental defective, in the majority of cases as a child of poor educability suggests that the local education authority, with its team of teachers, educational psychologists and medical officers, is the body most suited to undertake the primary ascertainment of the defective. If under new legislation cases found to be "ineducable" are referred to the local health authority, as at present, it should be obligatory for the latter authority to re-assess the child, and re-assessment should be carried out at stated intervals thereafter. All the resources of the local authority should be made available and should be integrated at all stages of the defectives career, so that any training given in younger days is with an eye to the future and the responsibility that may occur later on.

(3) *Detention.*

(a) *Place of Safety Order.*

The present arrangements are not satisfactory especially in that there is no time limit after which the order is void. It is suggested that three months would be a reasonable maximum period in this respect and that the period of review in detained cases be reconsidered.

Place of Safety Orders are usually made under conditions of grave emergency. The number of establishments providing accommodation for such cases is quite insufficient and should be increased by making extra types available, and the necessary degree of compulsion for dealing with emergencies imposed upon them.

(b) *Custodial Care.*

The same somewhat complicated and cumbrous legal machinery is used whether guardianship or institutional care is recommended.

Little use is made of guardianship now that the National Assistance Board can give financial assistance in such cases and for the few cases where guardianship is still needed a much simpler procedure should suffice.

In the case of institutional care, the statute appears to be based on the principle that the defectives are, in every case, being removed compulsorily against their own wish and that of their parents and relations.

That is not so and in the vast majority of cases the parents and relatives desire the defective to be admitted to an institution.

In these cases all that would appear to be necessary is medical evidence that the applicant is defective and that institutional care is needed.

Then admission would occur on the application of the parents or guardians who would be at liberty to ask for the defective to be discharged.

This discharge on request should be allowed subject to the safeguard that the medical officer of the institution and a medical officer of the Local Health Authority must be given sufficient time in which to present a petition to a Judicial Authority against the proposed discharge in any case where this would appear to be in the interest of the defective or the public.

There should be a periodic report from the medical head of the institution that continued accommodation in the institution is desirable. Before making this report he should have particulars from the Local Health Authority of the home circumstances. In cases where the parents of a defective die or disappear, the defective would then fall to be dealt with under the general procedure for those detained by judicial process, but a *guardian ad litem* might be appointed to safeguard the interests of the defective. An officer of the Local Health Authority might act in this capacity.

The Society has no evidence to support the charges, sometimes made, that defectives are kept unnecessarily in institutions because they are useful there, but it might calm public opinion if some person independent of the institution and of the Board of Control were associated with the periodic reviews of the orders of detention.

(4) *Licence.*

Similarly when patients are being considered for licence, apart from those who continue to live in an institution or in a special home nearby, an independent examination instead of, or complementary to, that given by the institution medical officers might be the preliminary to the granting of licence and all cases in institutions should be subject to such examination for the purpose of ascertaining whether licence is desirable and possible. The protection of the patient would be increased by these measures.

(5) *Discharge.*

Again a medical examination independent of the institutional one is advisable, and a further medical examination made compulsory when a patient has been on licence for, say, a period of two years. The supervision of a defective should be exercised as a routine and not just at the request of the superintendent of the institution.

These, briefly, are the recommendations and suggestions which the Society wish to place before the Royal Commission for their consideration. The preventive measures envisaged for reducing the amount of permanent mental illness, together with those suggested for the continued training and supervision of mental defectives are based on sound principles with full regard to the important issues of economy in administration, the welfare of the patients and the promotion of community health.

The Society is well aware that in drafting new legal enactments in relation to mental health and mental deficiency a high degree of precision is required, involving the most careful examination of any proposals put forward. The Society is therefore prepared to give oral evidence in more detailed support of this memorandum should the Royal Commission so desire.

The Secretary of State for Scotland has appointed Captain J. P. Younger, C.B.E., to succeed Sir Alexander Macgregor as chairman of the Scottish Western Regional Hospital Board on April 1st. Captain Younger is a former Provost of Alloa and Convener of Clackmannan County Council. Sir Alexander Macgregor, formerly M.O.H. Glasgow, and a Past-President of the Society, has been chairman of the Western Regional Hospital Board since its inception in 1947. In accepting his resignation, the Secretary of State has written of the very great service he has rendered since the Western Regional Hospital Board was established, covering the inauguration of the National Health Service "including a revolution in the hospital world that was carried through with smoothness and efficiency." "In spite of all the difficulties," he adds "you have presided over the hospital affairs of half Scotland with a sure touch and general acceptance, and you will, I hope, long take pleasure in looking back on what you accomplished in this field."

BOOK REVIEW

Fluoridation as a Public Health Measure. American Association for the Advancement of Science, Washington, D.C. (Pp.232. Price 40s.) London : Bailey Bros. & Swinfen Ltd., 1955.

This collection of papers contributed by a group of experts on fluoridation is probably the most valuable publication on the subject of recent times. It answers many hitherto unanswered questions, and should reassure any who still have doubts of the safety of this much-discussed means of controlling dental decay. The book is the third of a series of three books ; the first, published in 1941, dealt with the effects of excessive fluoride ingestion, while the second covered the vast amount of epidemiological work on the relation between fluoride content of water and the incidence of dental decay. From the fact that decay was found to be about 60% less with levels of fluoride between 1·0 and 1·5 p.p.m., and that at this level no unsightly mottling of the teeth occurred, it was decided to introduce fluoridation. This third book shows beyond doubt how effective it has proved and, a most important point, it shows the complete lack of harm to any of the people living in these areas.

The dental benefits obtained from fluoridation are covered in the first paper by Dr. Zachary Stadt. He gives a detailed account of the findings in the fluoridation studies, and shows that children who have consumed fluoridated water for the whole of their lives now have 50 to 60% less decay, a result which is comparable with the findings in areas where the same level of fluoride occurs naturally. An impressive fact is the number of children who are now completely free from decay. Dr. Stadt foresees a change not only in the amount of treatment which will ultimately be required as the result of fluoridation, but also in the type of treatment to be provided. He goes on to make the suggestion that the level of fluoride adopted in any area should be adjusted to climatic conditions and individual variations, a theme which is further developed by Dr. Gerald Cox in the following chapter. This may be of some importance in the United States, with its widely varying climates, but is unlikely to be of any material interest in temperate climates such as ours. Cox attributes the reduction in dental decay to a hardening of the dental enamel, while Bibby states in a later chapter that caries reduction is probably due to a decreased solubility of the enamel, which is probably much the same thing. Topical application is not well established and theories and assumptions are evident in an endeavour to suggest a lasting effect through the formation of a fluorapatite ; the presence of calcium fluoride is not evident on all teeth treated.

Cox differentiates between the prevention of decay by water-borne fluorides in the order of 1 to 2 p.p.m. during tooth formation, and the control of decay in erupted teeth by the topical application of fluoride solutions. He uses the term " fluorosed enamel " instead of " mottled enamel," as he considers that it is a better description " of the beautiful white teeth that result from inclusion of the most favourable amounts of fluorine." He makes the interesting suggestion that mottling or white spots observed by Houser and Knox, and by Hurme, in areas where there is little or no fluoride in water, are a manifestation of fluoride intake in quantities too small to prevent the development of such blemishes. This view is interesting because various people in this country have observed considerable mottling of the teeth when no fluoride is present.

In dealing with the work of Spira, Cox points out that his diagnosis of fluorosis was based upon the presence of mottled enamel, yet many of the cases may have been examples of white spots such as those noted by the authors above in low fluoride areas. This possibility has occurred to many of us in this country when reading, for example, of a family in Oxford all of whom show mottling of enamel though their well water contained only 1·9 p.p.m. fluoride, and although one of them had not entered the area until the age of 19. Similarly, where the fluoride content of water was only a trace to 0·15 p.p.m. mottling of enamel was observed in the only two subjects on whom the report was made. It would seem that reports in which the diagnosis of fluorosis rests upon mottling of the teeth alone should be regarded with considerable scepticism.

Largent deals with the metabolism of inorganic fluorides. The published work is well covered, although, perhaps naturally, he gives more prominence to his own studies. He deals fully with the absorption of fluoride in the body and distinguishes between the nearly complete absorption of a soluble fluoride and the lower rate of absorption of *e.g.*, calcium fluoride in bone meal. In solution both sodium and calcium fluorides are nearly all absorbed (82 to 97%).

The elimination of fluoride in urine is discussed and at low levels of fluoride intake various workers obtain much the same result, but the amount retained or stored is apparently con-

troversial. McClure found that the total excretion in urine and perspiration accounted for all the intake at levels up to 5 mg. per day whilst Largent, who measured the excretion in the urine, only considered that a high level was stored. When the fluoride intake was lowered fluorides said to be stored in the bones was lost in the urine over a considerable period of time. It is known that the fluoride content of the bones increases with age but the conception of bones as a temporary storehouse when excess fluoride is ingested is not yet established. A great deal of work has been done on the absorption and excretion of fluoride but it is clear that more will be necessary to obtain a clear picture of the metabolism and a knowledge of storage and elimination from the body. Hodge, also, deals with this subject on page 87.

In considering the safety of fluoridation, the chapters by Hodge and Smith, and by Leone and his associates, are probably the most valuable.

Hodge deals with the risk of fluoridation at 1 p.p.m. and is definite that the general health will not suffer. With regard to mottling he points out that an adult, unless born in a fluoride area, cannot get mottled teeth. Children at 1 p.p.m. have odds about 2 to 1 against anything more than very mild mottling, but he quite correctly points out that more epidemiological work on mottling is necessary, and he asks why a few children show a degree of mottling which is not reached by the majority, (>90%). This is important and may well be linked up with the fact that all children do not get caries protection. Fundamental studies are still required though the benefits of fluoridation are well established and the harmlessness demonstrated. Hodge gives an 8 to 20-fold safety factor for osteosclerosis and *x*-ray changes. Growth depression and acute poisoning have higher margins of safety. They examined in some detail the possibility that fluoride stored in the skeleton in small quantities is dangerous *per se* and conclude that it is not. He ends up " . . . the health hazards do not justify postponing water fluoridation."

Leone and co-workers report the well-known Bartlett study (water content 7 to 8 p.p.m. Fl.) in which over 200 long-term residents are compared with residents in a nearby low fluoride area having some 35 years of exposure. The examination was pursued in some detail and included many medical, radiological and laboratory studies. Significant differences in the two areas were found only in respect of cardiovascular abnormalities (lower in Bartlett), and of white blood counts (higher in Bartlett) and albuminuria (lower in Bartlett). They conclude that "No significant vascular or functional effects resulted from prolonged ingestion of water containing excessive fluoride except for dental fluorosis." This is a most important and detailed study made of prolonged consumption of high fluoride waters by man. It definitely establishes an eightfold safety margin (except for dental fluorosis) for areas fluoridated from water at 1 p.p.m. given comparable conditions. It would be of great interest to know what the fluid intakes of Bartlett inhabitants are. From what one gathers, in Texas they are probably higher than those of England.

Schlesinger and his associates deal with the Kingston/Newburgh study. Here the effects, if any, of fluoridation upon children are studied ; a particular interest from the medical point of view of this study arises from the fact that in family studies one of the first signs of toxicity is a considerable number of substances as a check to growth. None has been reported in this study.

Soggnaes discusses the relative merits of fluoridation vehicles and points out that although fluoride is a normal constituent of our diet that cannot be eliminated, the daily intake is insufficient for caries protection unless really large quantities of fish are consumed or tea, about 12 cups per day, is drunk. Other vehicles, *e.g.*, milk and flour, are considered but in most cases control both in addition and in amount consumed, particularly by young children, rule this out. Epidemiological evidence is concerned with water, and tablets (NaF) in water appear successful but perhaps not suitable for everyone to use. It is not made quite clear, however, that if fluoride is to act as caries preventative it must be absorbed, and there is no evidence that supplementary fluoride in food would be absorbed and utilised to give the same degree of caries protection. He mentions flour but what of the calcium content of flour in this country ?

Muegge discusses the various methods of feeding fluoride salts to a water supply. Solution feeders are becoming more flexible in that with the use of stronger solutions of the more soluble fluorides they can be used for large supplies. Modern equipment is very reliable and has an accuracy to within 0·5% of the selected rate and, using solutions of sodium fluoride or sodium silicofluoride the desired level in the water supply can be easily maintained. One wonders, however, if the same accuracy in the water supply will be so easily maintained if solutions of fluoride about five times the usual strength are used, *e.g.*, hydrofluosilisic acid. Moreover, any breakdown resulting in an overdose would be of no consequence using dilute solutions of fluoride whereas with a strong solution more serious overdosing might be possible. The use of solid feeders is described ; these can be used for even small water supplies and are of course ideal for large supplies. Installation safeguards are discussed, and the use of dust extractors for the larger water supplies is advised.

On the control side most States in America require submission and approval of plans and specifications for fluoridation, and when the plant is operating require daily fluoride determinations and submission of reports to the State Health Department. Methods are given for the determination of fluoride in water ; these include isolation of the fluoride by distillation followed by its estimation by colorimetric procedure, and direct colorimetric determinations using visual standards or an absorpiometer.

The direct method is subject to interference by other ions which may be present in water, and the case is made that all routine control tests made directly without distillation can be relied upon if the results are in agreement with a control laboratory that uses the distillation method. It is stated that " provision should be made in all cases for referee tests of unquestioned accuracy."

While the chapter by Starr Nichols deals admirably with the chemical aspects of water fluoridation it is unfortunate that the chapter dealing with some chemical effects of fluoridation should begin with the element fluorine and imply that it is a constituent of water and plays an important role in tooth development. This is not so, it is the fluoride ion derived from the ionisation of soluble fluoride salts and not the element fluorine in water, and this is made clear subsequently in the chapter.

The hypothesis is advanced that, since naturally occurring fluorides in water and those artificially added are both derived from the same natural mineral source, the fluoride ion is similar in each case. But other metallic fluorides are also prepared from the same mineral sources and these, for example stannous fluoride, might give complex fluoride ions. It is surely more accurate to say that traces of these minerals, *i.e.*, fluospar or silicon fluorides, dissolved in water ionise, giving the simple fluoridation just as the fluoride chemicals added to water ionise, giving also the simple fluoridation.

SOCIETY OF MEDICAL OFFICERS OF HEALTH

ORDINARY MEETING

An Ordinary Meeting of the Society was held at 12.45 p.m. on Friday, March 4th, 1955, in the Council Chamber, B.M.A. House, W.C.1.

Minutes of Last Meeting.—The Minutes of the Ordinary Meeting, held on November 26th, 1954, were confirmed and signed by the President.

Elections.—The following candidates, having been proposed and seconded, were duly taken into membership :—

Fellows.—Drs. Beatrix Helen Bakewell, Patrick Xaviar Bermingham, Maurice Rickard Burke, Roma Chamberlain, I. Harvey Flack, Lincoln Neville Gould, John Gordon Guest, P. M. C. James, Esq., L.D.S., Drs. William Melville McCutcheon, G. D. W. McKendrick, Roydon Barry Morley-Davies, Nora Proctor-Sims.

Associate.—John Sinclair Maclachlan, Esq., L.D.S.

Life Membership.—The following were elected Life Members on the nomination of the Council and their respective Branches : Drs. K. E. Tapper, T. Ruddock-West, R. J. Cyriax, Jean M. Orkney and D. E. Morley.

EAST MIDLAND BRANCH

President :Dr. Malcolm Allan (M.O.H. Repton R.D.C.).

Hon. Secretary : Dr. J. A. Stirling, D.S.C. (M.O.H., Chesterfield M.B.).

A meeting of the Branch was held in the Guildhall, Nottingham on Thursday, October 14th, 1954. In the unavoidable absence of Dr. Gibson, Dr. E. B. B. Humphreys was in the chair and there were 23 members present.

Dr. Humphreys installed Dr. Malcolm Allan as President of the Branch for the session 1954/55 and Dr. Allan suitably replied.

The Hon. Secretary reported that Dr. Sydney Hunt had retired from his position as M.O.H. to the Shardlow R.D.C., and it was unanimously agreed that a letter be sent to Dr. Hunt expressing the best of good wishes to him in his retirement.

The question was raised as to the appointment of a Deputy Representative of the Branch to the Council of the Society and it was agreed that the President of the year should act in that capacity.

Dr. Allan then delivered his Presidential Address entitled "Smallpox in the Black Country." He described an outbreak of smallpox in Staffordshire in 1947 in an excellent manner, stressing particularly the part played by the M.O.H.s concerned. His paper was very interesting, instructive and stimulating, and was interspersed with flashes of his inimitable humour. That his paper was appreciated was shown by the keen discussion which followed and at the end of which a hearty vote of thanks was accorded to Dr. Allan on the proposition of Dr. Jeremiah.

A meeting of the Branch was held in the Guildhall, Nottingham, on Thursday, November 11th, 1954, the President in the chair and 18 members present.

On the proposition of Dr. Jeremiah, seconded by Dr. Dodd, a unanimous and hearty vote of thanks was accorded to Dr. Gibson, the retiring President, for valuable services rendered during his year of office and Dr. Gibson suitably replied.

Dr. J. H. Chalmers Clarke then opened a discussion on Fluoridation. He dealt with this subject in a masterly manner and the members found it very interesting and instructive. A keen discussion and numerous questions followed at the conclusion of which Dr. Clarke was warmly thanked by the President.

A meeting of the Branch was held in the Guildhall, Nottingham, on Thursday, December 9th, 1954, the President in the chair and 23 members present.

This was an open meeting and discussions took place on (1) Flavoured Milk—Dr. Gibson. (2) Swimming Instruction in Schools, Safety Precautions—Dr. Stirling. (3) Value of Medical Examination in Superannuation—Dr. Byars. (4) Gamma Globulin in prevention of Infective Hepatitis—Dr. Clarke, and (5) Medical Memorandum on Poliomyelitis—Dr. Graham.

During the discussion on poliomyelitis, it was pointed out that there was no general law or regulation authorising payment of wages to close adult contacts of poliomyelitis excluded from work by the Medical Officer of Health, similar to the power conferred by the Public Health (Infectious Diseases) Regulations 1953, in respect of certain other diseases.

It was agreed that such powers might be possessed by certain local authorities by Private Acts, but it was felt that it should be of general application and the Hon. Secretary was instructed to request the Council of the Society to consider this matter with a view to requesting the Ministry of Health to either add poliomyelitis to the diseases dealt with under the Public Health (Infectious Diseases) Regulations or to deal with the matter in some other appropriate manner.

[We apologise to the East Midland Branch for some very belated reports of meetings held in a previous session which appeared in the February issue.—*Editor*, PUBLIC HEALTH.]

METROPOLITAN BRANCH

President : Dr. V. Freeman (M.O.H., Islington Met. B.).
Hon. Secretary : Dr. F. M. Day (M.O.H., Hammersmith Met. B.).

A meeting of the Branch was held at the London School of Hygiene & Tropical Medicine, Keppel Street, W.C.1, on Friday, 10th December, 1954, the President in the chair and 42 members and visitors present, including members of the Metropolitan Boroughs Chief Sanitary Inspectors Committee, who attended by invitation of the President.

The President announced that the Metropolitan Branch Essay Prize for 1953/54 had been awarded to Dr. M. D. Warren, Deputy M.O.H., Hampstead and thereupon made the presentation. (This Essay was published in PUBLIC HEALTH, February, 1955).

An invitation was conveyed to members of the Branch from the Maternity & Child Welfare Group, to attend a meeting of the Group on March 4th, 1955, when Dr. Grant, Consultant in Physical Medicine, Winchester Group Hospitals, will be talking on "The rehabilitation of the Physically Handicapped in their own homes."

Dr. D. H. Geffen, O.B.E., then gave a most interesting and informative address on the "Prevention of Poliomyelitis," (published in PUBLIC HEALTH, March, 1955) which was followed by a lively discussion in which the President and several members took part. A hearty vote of thanks to Dr. Geffen was proposed by Dr. Ian Taylor.

The Chief Sanitary Inspector for St. Pancras thanked the President for inviting members of his Committee to attend.

SOUTHERN BRANCH

President : Dr. R. A. Good (M.O.H., City of Winchester).
Hon. Secretary : Dr. E. J. Gordon Wallace (M.O.H., Weymouth M.B.).

A meeting of the Branch was held at the Little Testwood House Hotel and Country Club, Totton, Nr. Southampton, on Thursday, 28th October, 1954, 17 members and two guests attended.

On behalf of the Branch, Dr. I. B. Lawrence welcomed Sir William Savage, who had recently come to live in Winchester and was now a member of the Branch.

It was unanimously agreed that the Branch should recommend to the Council of the Society that Dr. H. L. Cronk be nominated for Life Membership of the Society.

A letter dated August 20th, 1954, was read from Mr. Bragg, the Administrative Officer of the Society, in connection with the Branch's resolution re the staining of unfit meat. Mr. Bragg pointed out that as there is at present no statutory obligation for meat to be inspected, the first thing would be to press for a statutory requirement to be introduced for the inspection of all meat at slaughterhouses and then to ask that meat condemned at such inspections should be stained. The Society has already recommended the Ministry to make such meat inspections compulsory and an early decision is expected.

Honorary Treasurer. It was proposed by Dr. G. Chesney, seconded by Dr. W. P. Cargill and unanimously agreed that Dr. I. A. MacDougall should succeed Dr. H. L. Cronk as Hon. Treasurer for the Branch.

Cases of Clinical Interest. Dr. L. J. Bacon described an outbreak of "epidemic nausea" in a secondary modern school which had started by affecting 12 children in an annexe to the school, the symptoms being frontal headache, feeling sick and dizziness. Some of the children had a temperature of 99·2°. At first this had been attributed to a leakage of gas which had occurred in the annexe but the following day over 100 children in the main school were affected by similar symptoms. A full investigation was carried out but no cause for this outbreak could be traced.

Dr. Wallace described a case of acute poliomyelitis following on a first pertussis immunisation injection.

Installation of President.—Dr. I. B. Lawrence, the retiring President, installed Dr. R. A. Good, M.O.H. Winchester, as President of the Branch for the Session 1954/55. Dr. Good thanked the members for the honour they had done him in electing him to be their President.

Presidential Address—Climate and Health

Dr. Good said he had given much thought to the preparation of his presidential address and had decided that following a year of freak weather, the occasion presented a suitable opportunity for considering the effects of climate on the health and well-being of the individual.

It is an acknowledged fact that climate has a profound effect on the health of mankind. The ill effects of the east wind are well recognised as is also the value of certain types of climate in the treatment of different diseases, and all will agree that we feel better when the sun is shining. On the other hand, too much sun and warmth produces lethargy whereas an extensive variation of weather, such as we are accustomed to in these islands, increases vigour and drive.

There is no doubt that climate has a great effect upon the distribution of most diseases. It also determines in part the nature of the foods we eat, our sanitary methods and appliances, the structure of our homes and factories and our social and family organisation.

The relationship between disease and climate is a complex one, as is well illustrated by the study of the epidemiology of cholera in India. Various theories for the spread of this disease have been propounded, it originally being thought that the wind and relative humidity were causative factors, but as recently as 1950 the World Health Organisation were asking for further investigations to be carried out.

The abruptness of the changeable weather in these islands makes it difficult to analyse its effect on disease, but it is an established fact that a period of fog always has a serious effect upon diseases of the respiratory system. Fog—where it is associated with smoke and dust, mainly in our industrial areas—produces a condition which is known as "smog." The increased death rate, mainly from bronchitis and pneumonia, which is associated with such fog has created a problem which the medical profession as a whole and the Public Health Service in particular could do much to alleviate. Already much work has been done by means of legislation and in educating industrialists and the public in the better use of fuel but smoke abatement still remains a serious problem.

The cold weather, which we experience in the months of January and February especially, is another factor which is associated with increased illness, particularly due to upper respiratory infection.

There are many other conditions upon which climate may act as a determining factor. In the field of psychology for instance, suicide and alcoholism, to quote two examples, have a well-marked seasonal influence and the incidence of these conditions also varies greatly in different climatic regions.

Nevertheless, the effects of climate on disease distribution are seldom direct and usually involve so many secondary considerations that scientific research in this matter has been extremely difficult and relatively apathetic.

Dr. Good concluded by saying that although the climate in our islands is much criticised and abused, it is probably the most suited for the health and longevity of the average individual.

A most interesting discussion then took place, the main points raised being the effect of climate on asthma, the low incidence of poliomyelitis during a summer lacking in sunshine, and the virulence of modern fogs as compared with their predecessors. On the proposition of Dr. Lawrence, a very hearty vote of thanks was accorded to Dr. Good for his paper.

A meeting of the Branch was held at the Town Hall, Bournemouth, on Thursday, December 16th, 1954, 15 members attended.

The President welcomed Dr. W. Fielding, lately deputy M.O.H. of Sheffield, who had recently come to Bournemouth as Medical Officer of Health.

Prison Medical Service

Dr. M. A. B. Fenton, Medical Officer, H.M. Prison, Winchester, then gave members a most interesting talk on the varied duties which a Prison Medical Officer is called upon to perform.

Each man on reception is brought before the doctor who carries out a full examination to determine that he has no illness or communicable disease and that he is free from skin infections or vermin, and also to determine his fitness for the labour which will be allotted to him by the Governor Any defect is noted and treatment ordered if it is considered necessary. In addition, on reception, men who are charged with certain offences, *e.g.* all sexual offences and offences involving violence, are placed under supervision so that they may be observed and examined before they are tried.

Should a man serving a sentence suddenly develop a very serious illness requiring specialised medical or surgical care, the Secretary of State has powers to have such a man temporarily removed to a local outside hospital and whilst there, he is put on his honour not to cause trouble or attempt to escape. Other ailments not of an emergency nature requiring surgical treatment can be sent to Wormwood Scrubs Prison to be operated on there.

Whilst a man is undergoing a sentence adequate provision is made for his medical care to ensure that on his release from prison, he is not in a worse state of health than he was on his original reception and as far as possible any ailments likely to interfere with his prospects of employment on his release are remedied.

The amount of casual sickness which occurs in the prison is not excessive, not amounting to much more than 2% throughout the entire year. Prisoners are entitled to all the benefits under the National Health Service Act—they can be sent, under escort, to the local hospital for specialist opinion, or to an ophthalmic specialist or consulting optician if they are in need of spectacles. A dentist visits the prison twice a week. Provision is also made for men belonging to the county and serving a sentence of six months or less to have psychological treatment from a visiting consultant psychiatrist who can supervise treatment after discharge. Should a blind person be received, a teacher pays regular visits to give instruction in Braille, raffia work, etc. All possible steps are taken in an effort to rehabilitate men during their sentences. Each prison also has a hospital manned by Hospital Officers, mainly recruited from the medical section of the various fighting services.

Apart from these duties, the main work of the full-time Medical Officer is psychiatric, especially in relation to court work. This is a particularly specialised type of work involving an intimate knowledge of psychiatric conditions, all with special reference to the question of responsibility in law. There are certain classes of offences which the Prison Medical Officer must always investigate whether a report has been asked for or not, and in he case of persons charged with murder he must submit a report on the person's state of mind to the Director of Public Prosecutions before the trial. Other offences such as manslaughter, malicious wounding and all sexual offences must also be investigated without a request from the court.

When a man has been convicted on a minor offence in a summary court and found to be insane, he can be dealt with by the court and removed forthwith to a mental hospital under certificate, such certificate having the same effect as if he had been certified under Section 16 of the Lunacy Act of 1890. In the case of offences of some gravity dealt with by a higher court, insanity can be used as a defence and the McNaghten rules may be used. If the court is satisfied that a man is unfit to plead, the verdict is returned accordingly and the man is ordered to be detained as a Broadmoor patient until Her Majesty's pleasure be known.

The Medical Officer's opinion is available to the court as to the disposal of accused persons with all sorts of medical problems, principally psychiatric. In very rare circumstances where there is very little possibility of the prisoner surviving his sentence, the Home Secretary may authorise the unconditional release of this prisoner. The responsibility for the recommendation rests with the Prison Medical Officer who must constantly be on his guard to avoid being fooled by a prisoner.

In the case of mental defectives, certain statutory duties are laid upon the Medical Officer. Should he find that the defendant is certifiable as a mental defective he must notify the local authority, who is responsible for obtaining a vacancy at a Mental Defective Institution, and he must also notify the court in order that they can, if they wish, take action under Section 8 of the Mental Deficiency Act. In the case of a known defective coming into prison, the Medical Officer must again contact the local authority and notify the court so that if necessary the man may be taken back into an institution forthwith. Occasionally a man is found to be a mental defective after he has been sentenced to imprisonment, in which case he may still be certified under Section 9 of the Mental Deficiency Act and removed in due course to a colony on an order from the Secretary of State.

The Criminal Justice Act of 1948 has brought several duties to the Prison Medical Officer particularly with reference to suitability for Corrective Training and Preventive Detention. Before any person can be sentenced to Borstal Training, Corrective Training or Preventive Detention, he must be examined and a certificate given to the court as to his fitness for any of these forms of punishment.

The Prison Medical Officer is primarily the doctor attending the prisoner, but in forensic cases he is a State Servant and gives his opinion to the court whether it be in the prisoner's favour or otherwise.

Many points were raised in discussion by the members and were dealt with fully by Dr. Fenton. On the proposition of Dr. D. J. N. McNab a very cordial vote of thanks was accorded to Dr. Fenton for his paper. A vote of thanks was also given to those members of the Branch who had made the local arrangements for this meeting.

WEST OF ENGLAND BRANCH

President : Dr. L. Solomon (A.C.M.O.H., Devon).

Hon. Secretary : Dr. R. H. G. H. Denham (M.O.H., Bathavon, Frome : A.C.M.O.H. Gloucestershire).

A meeting of this Branch of the Society was held in the Shire Hall, Taunton, on Saturday, October 2nd, 1954. The retiring President and 17 members attended.

Presidential Address

Dr. Solomon was invested with the badge of office by the retiring President and delivered his presidential address entitled, " Is the Assistant Medical Officer Really Necessary ? ". He began by stating that his remarks were based on conversations with assistant medical officers of health up and down the country and that they were intended to allow the voice of the assistant medical officer of health to be heard, a voice which was so often silent. He noticed in recent reports and ministerial speeches that local authorities were being encouraged to employ general practitioners in their clinics, etc. This he deplored as, while the assistant medical officers' duties could be done by the general practitioner, most individual general practitioners said they did not wish to do the work or that they had not the time to do it. Before the general practitioner could do it satisfactorily he would require a re-orientation of his thinking and his training from that of diagnosis and treatment of disease to that of the prevention of disease and the maintenance of optimum health both mental and physical.

The people who were actually doing the work to-day were :

(1) Retired general practitioners or ex-Service or Colonial Medical Service medical officers.

(2) Prospective medical officers of health on the first rung of the ladder of promotion.

(3) Women (and men) who had made a career of this type of work, specialised clinical work—these formed the majority.

It was a regrettable fact that while there were many more assistant medical officers of health than medical officers of health in the society the assistant medical officer of health was not adequately represented on the Council or on the Salary Negotiating Committee.

Dr. Solomon suggested the following Charter for the assistant medical officer of health :—

(1) He should be fully trained and experienced in public health, obstetrics, paediatrics and child-health, preferably with post-graduate qualifications. His outlook should be orientated towards health and not disease. The initial

salary scale should be adjusted to compensate for years of post-graduate study and the taking of extra qualifications. At present the newly qualified and the highly qualified start at the same salary. In fact, lip service only was paid to post-graduate qualifications and even war service in fixing initial salaries. He should have equal status with the administrative medical officer of health and not be his junior employee.

(2) He should be kept informed by the medical officer of health of all that went on in the local authority area and in the county generally in local authority matters and not just be given duties with no further interest being taken. A regular information sheet would help.

(3) He should be encouraged to meet and get to know all his local authority colleagues, seniors, and officers of other departments and, more important still, the members of the council, specially those of the health committee. He should be invited to attend council and committee meetings as observer to acquire a knowledge of procedure.

(4) He should be sent on an annual refresher course rather than have to beg to be allowed to go and often be refused (general practitioners can attend annual post-graduate courses with full expenses paid). This applied especially to health education courses. Juniors needed the instruction, information and social contacts gained at national and regional meetings and conferences more than the medical officer of health. Leave to travel abroad and travelling scholarships would be more valuable at the beginning of his career than at the end.

(5) He should be encouraged to interest himself in the activities of associated organisations, *e.g.* Home Safety, Road Safety, Marriage Guidance, Council of Local Service etc.

(6) The M.O.H. should arrange for the assistant medical officer's regular attendance at hospital, preferably as clinical assistant. He could give the specialist much more help because he knew the social conditions and living conditions so much better than the hospital doctor.

(7) The assistant M.O. who wished to go forward for promotion to administrative medical officer of health work should be given special practical instruction and experience in the office by a kind of apprenticeship in administration. The M.O.H. should help the assistant medical officer in every way to obtain the experience and skill necessary for promotion. Public health journals and local authority journals should be available for circulation to all assistant medical officers.

(8) The assistant M.O. should be encouraged to initiate and carry out special research projects and investigations and should be encouraged to put his ideas forward and to use his initiative.

Dr. Solomon concluded by stating that he believed that the assistant medical officer was really necessary. He believed his work was too specialised for it to be done by others at present. He thought that because the assistant medical officer was not his own master and that, of necessity, he must do as he was told, it was the responsibility of the medical officer of health to help him in the ways suggested above. His purpose had been to suggest that a much more practical interest should be taken by his seniors and by his chief in the assistant medical officer's welfare, his post-graduate education in maintaining his keenness and his interest in his work and in keeping him well up to date in his technique and methods.

Dr. Mary Budding expressed the viewpoint of the woman assistant medical officer who makes a career of the work and at the request of the president a full discussion followed in which Drs. Whittles, Wofinden, Allen-Price, Bond, Richards and Irvine took part.

Thanks to the president for his address were expressed by Dr. Fay.

It was announced that the annual branch award for the year 1954 had been won by Dr. McCall for his paper on, "An Explosive Outbreak of Food-Poisoning, caused by Salmonella Dublin."

A meeting of the Branch was held on January 8th, 1955, at the Central Health Clinic, Bristol. The President and 19 members were present.

The honorary secretary referred to the recent retirement of Dr. Morley, of Cheltenham, and it was unanimously agreed that his name be submitted to the Council of the Society for recommendation for life membership.

Miss E. H. L. Duncan, Records Officer, Public Health Department, Bristol, gave an address entitled "Techniques in Public Health Field Surveys." The speaker gave a detailed account of the modern methods of carrying out surveys of this type and at the end of her address she escorted the members present round the Statistical Section and explained the mysteries of these rather formidable looking machines.

Thanks to Miss Duncan for a most interesting and informative talk were ably expressed by Dr. Morris Jones.

WEST OF ENGLAND BRANCH

(Southern Area)

President : Dr. L. Solomon (A.C.M.O.H., Devon).
Hon. Secretary : Dr. T. Peirson (M.O.H., Plymouth C.B.).

An ordinary meeting of the Southern Area of the Branch was held on Friday, January 21st, 1955, at the Marine Biological Laboratory, Plymouth. Eighteen persons attended.

The President referred to the fact that Dr. L. Meredith Davies, Devon County Medical Officer, was shortly to retire, and the good wishes of the meeting were offered to him and Mrs. Davies.

Dr. H. W. Harvey, F.R.S., welcomed the members to the Laboratory of the Marine Biological Association of the United Kingdom, and various members of the staff gave special demonstrations of the work at present being done there. An extremely interesting afternoon was spent in the Laboratory.

YORKSHIRE BRANCH

President : Dr. C. G. K. Thompson (M.O.H., City of Wakefield).
Hon. Secretary : Dr. H. L. Settle (M.O.H., Doncaster C.B.).

The inaugural meeting of the 1954-55 Session was held in the Town Hall, Wakefield, on Friday, October 29th, 1954. Dr. C. G. K. Thompson was installed as President by the retiring holder of the office, Dr. W. G. Evans, who thanked members for the loyal support given during his term of office. Dr. A. L. Taylor proposed a hearty vote of thanks to the retiring President on the conclusion of his successful year of office.

Presidential Address

Dr. Thompson then gave his Presidential address on "Loyalty in the Medical Profession," drawing attention to the present status of the Medical Officer of Health and some of his difficulties, and to the great need for increased loyalty, co-operation and good will between all members of the medical profession. The speaker discussed the effects of the introduction of the National Health Service as regards the relationships between the various branches of the profession and especially on the work of the Medical Officer of Health.

Turning to domestic matters the speaker reviewed problems encountered particularly as regards the attendance at Branch meetings of Assistant Medical Officers of Health and announced that as far as possible the session's programme would be arranged to enable the maximum number of Assistants to attend meetings. He had broken with tradition that day by obtaining the use of the Council chamber at Wakefield Town Hall for his installation and it was hoped to vary the venue of Branch meetings during the year of office.

Following the Presidential address, Dr. J. Wood-Wilson proposed a vote of thanks to the speaker, which was seconded by Dr. D. D. Payne. Members then partook of light refreshment which had been kindly provided by the Health Committee.

A meeting of the Branch was held at the Department of Preventive Medicine and Public Health, 32 Hyde Terrace, Leeds, on Friday, November 19th, 1954, at 5.30 p.m. when Dr. G. Tattersall, Deputy Medical Officer of Health, Wakefield County Borough, gave an address.

A Venture into Minor Research

Dr. Tattersall drew attention to the fact that general research in the field of public health or social medicine involves many people working together as a team and is often prolonged and expensive. However, as Dr. Jean Mackintosh pointed out in her recent Presidential address, there is a considerable amount of information lying dormant in the records of the Health Depart-

ment which is never used because it is either not in a form which makes it possible to use, or the staff and time are lacking to extract what is relevant. Dr. Tattersall had interested himself in an investigation of this type which he called " desk research " and likened to the knitting which women take up in their spare time and which can be put away as and when necessary and resumed when appropriate.

The subject selected by Dr. Tattersall for his investigation was a comparison of the haemoglobin levels of pregnant women attending one of the Wakefield ante-natal clinics with those of an earlier investigation in 1937 carried out by Prof. A. C. Stevenson, who was at that time a member of the staff of the Wakefield Public Health Department.

The speaker then went on to compare in detail his particular findings with those of Dr. Stevenson 17 years previously. The age composition of the two groups was, for practical purposes, similar. Dr. Stevenson had found 20% of the mothers in his sample with a haemoglobin of less than 70%, whereas Dr. Tattersall's findings for his group of 450 mothers was 10·2%. The significance of this apparent improvement was then considered and the lecturer pointed out that Dr. Stevenson's samples had apparently been taken in the third trimester, whereas his series had covered the whole period of pregnancy. The number of cases in Dr. Tattersall's series whose blood had been sampled in the third trimester was 110 and the mean haemoglobin level of these cases was 78·09%.

The speaker also compared his figures with those of the M.R.C. investigation carried out during the war, pointing out that the high percentage of mothers in the present Wakefield survey with a haemoglobin below 70% might be an artefact introduced by the late appearance at the ante-natal clinic of multiparae who are, on the average, likely to be more anaemic. Two factors can apply here ; firstly, multiparae may have a chronic low haemoglobin level and secondly, having a blood sample taken in the third trimester means the haemoglobin level is then showing a physiological lowering.

Following the paper a discussion took place in which many members took part and the meeting closed with a vote of thanks to the speaker proposed by Dr. P. S. R. Burrell.

On Friday, January 7th, 1955, members met at the Semon Convalescent Home, Ilkley, at the kind invitation of Dr. J. Douglas, M.O.H., City of Bradford. Before commencing formal business the party was conducted around the Convalescent Home by Dr. Douglas and the Matron. Members were surprised to learn that the present day all-in cost for patients was only £3 per week and that both men and women, husbands and wives, and even children are taken for treatment.

The Secretary reported receipt of a questionnaire on certain matters affecting the public health service on which information was required by the Central Office for submission to the Hamilton Committee. It was agreed to set up a sub-committee consisting of Doctors E. J. Simpson, A. Marshall, J. Wood-Wilson, D. B. Bradshaw, J. A. Fraser, C. G. K. Thompson, J. Douglas, W. M. Douglas and the Honorary Secretary.

The President, after extending a hearty welcome on behalf of the Branch to Dr. Stonehouse of the North Western Branch, Mr. Myers, C.S.I., and Mr. Shelly, S.I., City of Bradford ; called upon Dr. J. Douglas, M.O.H., City of Bradford, to introduce the subject " Housing and the 1954 Act." Following a brief resumé of the housing activities, past and present, of Bradford Corporation, Dr. Douglas asked Mr. Myers to address members in greater detail on certain of the post-war slum clearance schemes which are now being undertaken in Bradford. The difficulties encountered in post-war schemes as compared with pre-war were dealt with. One of these is the enormous increase in the number of separate owners involved in dealing with a clearance area. A recent clearance scheme covering 260 houses involved no less than 155 separate owners, many of these, of course, being owner/occupiers. In a similar size clearance scheme before the war very few owners would have been involved.

One of the biggest problems in Bradford is the presence of 26,000 back-to-back houses. On the expected allocation of modern Corporation houses for rehousing from back-to-back premises it is estimated that it will take 44 years completely to eradicate the back-to-back type of house in Bradford. Mr. Myers then considered in detail the various factors which have to be taken into consideration in assessing whether the house is fit for human habitation, pointing out the particular problems which Bradford had encountered regarding the requirements for facilities for storage, preparation and cooking of food in back-to-back houses. Patching and certificates of disrepair were also discussed and the particular problems encountered in these spheres were considered at length.

Following Mr. Myers' paper a long and keen discussion took place covering a wide field of points. A hearty vote of thanks was proposed to the speaker by Dr. Lyons, M.O.H., Todmorden, who also thanked Dr. J. Douglas for the excellent arrangements made for the meeting and for the hospitality extended to members in the way of refreshments.

SCHOOL HEALTH SERVICE GROUP

President : Dr. W. J. Pierce (Sen. S.M.O., Northumberland).
Hon. Secretary : Dr. A. A. E. Newth, O.B.E. (Formerly P.S.M.O., Nottingham C.B.).

The first ordinary meeting of the session was held in the Council Chamber of the B.M.A. on October 22nd, 1954, at 4.30 p.m.

The chair was taken in the first instance by the retiring President, Dr. Mary L. Gilchrist. About 25 members were present.

Dr. Gilchrist expressed her great pleasure in handing over the Presidency to Dr. Pierce and wished him every success.

Hon. Secretary's Report.—Since the last Ordinary Meeting, held on April 23rd, 1954, the Annual General Meeting had been held in Manchester on June 17th and Council Meetings had been held on the day of the Annual General Meeting and immediately before the present meeting. A variety of matters of the greatest importance to the School Health Service had been dealt with, including immunisation by nurses, periodic medical inspections, prevention and cure of infestation by lice, " Added years," and towels in schools. Special attention had been given to group tests with the gramophone audiometer and the Sweep method with the pure tone audiometer and a memorandum had been drawn up and presented to the Council of the Society for the consideration of the Ministry of Education. Another memorandum had been drawn up on the question of cruelty and neglect of children. The Ministry of Education had received representatives from the Group with the permission of the Council of the Society to discuss certain implications of Form 4 R.T.C. Considerable attention had been given to the suggestion made by the Past-President, Dr. Gilchrist, that training courses for newly appointed S.M.O.s be organised by the Group and a formal application was to be made to the Council of the Society for permission to proceed with the scheme. They had also been asked to comment upon a draft memorandum of the Ministry of Education on the closure of schools for infectious diseases and a new draft on medical and dental inspections forms. A very successful refresher course for Senior School Medical Officers had been held in Birmingham from September 8th to 15th, 44 members attending the full course and certain others attending part-time.

The *Honorary Treasurer* then presented his Report.

New Members.—The following fellows of the Society were elected as members of the Group—Drs. E. A. Bagnall, Elizabeth Capper, Michael J. Dunn, Dorothy Green, Robert C. Greenberg, M. E. M. Herford, Flora Macdonald, Cecil J. MacQuillan and Sheila M. Wheeler.

Presidential Address.—Dr. Pierce then gave his Presidential Address on " Personal Findings of School Medical Inspection " (published in PUBLIC HEALTH, March, 1955).

Joint Meeting with Medical Officers of Schools Association

A joint meeting with the Medical Officers of Schools Association was held in Committee Room C of B.M.A. House on Friday, November 26th, 1954, at 4.30 p.m. The Group entertained the Association to tea before the meeting.

The President of the Group, was in the chair, supported by Dr. O. R. Tisdall, M. O. Harrow School, and by Dr. Jean Mackintosh, the President of the Society. About 70 members of the two associations attended.

The speaker was Dr. J. A. H. Lee of the London School of Hygiene who dealt with " Physical and Mental Defects among Men called for National Service." (Published in this issue of PUBLIC HEALTH).

The paper provoked the greatest interest and a large number of questions ranged over many of the aspects of the points made by the lecturer. Dr. Underwood, late Principal Medical Officer of the Ministry of Education warmly thanked Dr. Lee for his paper, seconded by Dr. Cohen.

The Industrial Court heard the claim of the Staff side of Medical Whitley Council Committee C for a general review of the remuneration of Public Health Medical Officers on March 29th and 30th. The award will be promulgated in due course.

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1944 J. Amer. med. Ass., *126*, 752. **1944** J. ment. Sci., *90*, 95. **1948** Amer. J. Psychiat., 105, 2, 107. **1948** J. nerv. ment. Dis., *110*, 1. **1950** Ann. intern. Med., *32*, 261. **1950** Lancet i, 287. **1951** Lancet ii, 1057, **1951** Brit. med. J., ii, 411. **1952** Amer. J. Psychiat., *108*, 888. **1953** Lancet i, 570. **1953** Med. World, *79*, 579. **1954** Proc. Roy. Soc. Med., *47*, 215. **1954** J. Amer. med. Ass., *155*, 114. **1954** Brit. J. Addict., *51*, 29 & 39.

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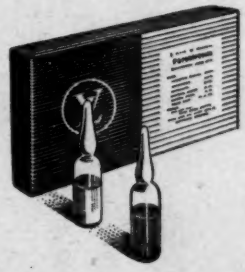

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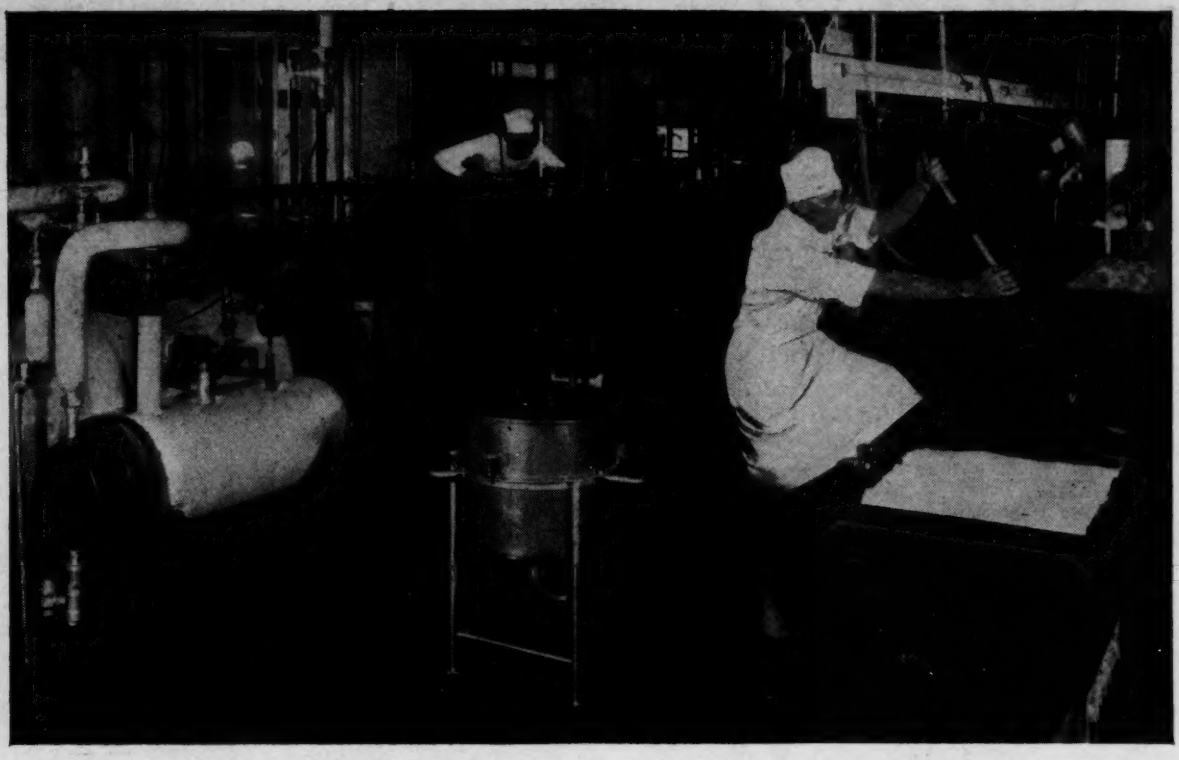

General view of the Serum Concentration Laboratory, Wellcome Research Laboratories, Beckenham, England

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